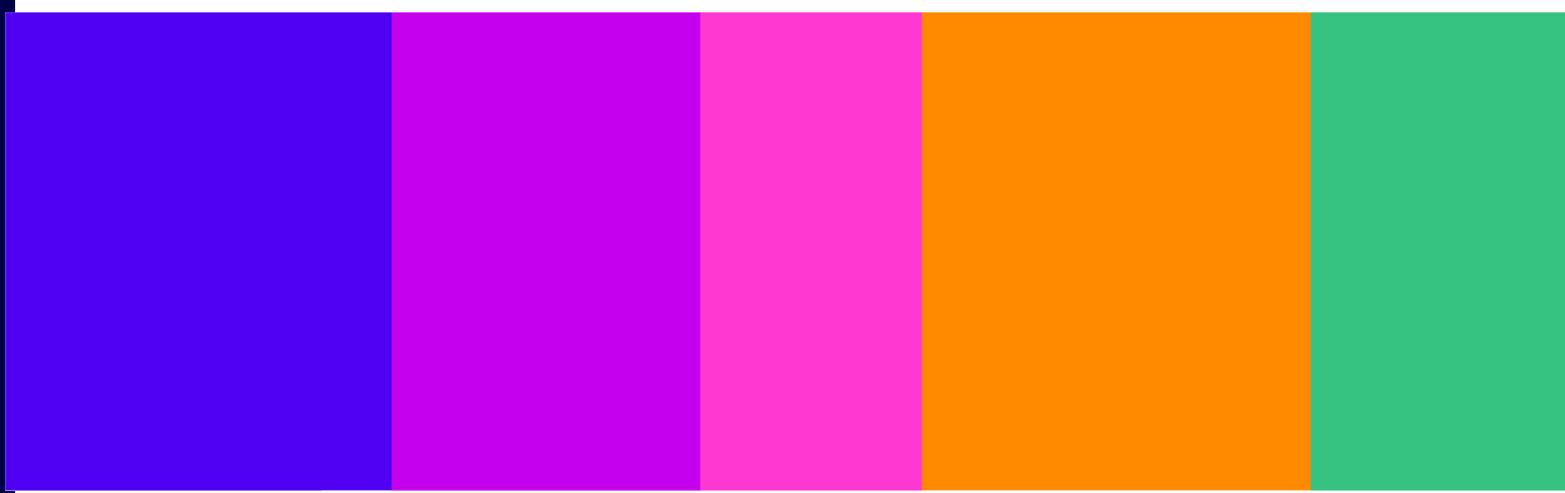


Global Titles and Mobile Network Security

Measures to address misuse of Global Titles
(Non-Confidential Version)

Statement

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We have published [Annex 6](#), Guidance for number range holders to prevent misuse of Global Titles, separately.

1. Overview

- 1.1 This document sets out our decisions on measures to tackle the misuse of Global Titles. This follows our July 2024 consultation which proposed to strengthen our existing rules and introduce new rules, including a ban on Global Title leasing, to prevent malicious signalling.
- 1.2 Mobile operators across the world use Global Titles as a routing address for the exchange of signalling messages both within and between mobile networks, to support the provision of mobile services (e.g. for call routing and SMS delivery while roaming abroad).
- 1.3 In the UK, Global Titles are created from the ranges of +44 mobile numbers that we allocate to mobile operators. A small number of operators have been leasing their Global Titles to third parties. While third parties may use the Global Titles to facilitate their provision of legitimate mobile services, this practice has also allowed bad actors (including commercial bodies providing tracking information to private investigators) to access the global mobile signalling network.
- 1.4 Malicious signalling can facilitate illicitly locating and tracking UK and international citizens via their mobile phones on other networks without their knowledge, which undermines their privacy and may even threaten their security. Other harms include intercepting and diverting messages and data, as well as disruption to the operation of networks. There is also a reputational risk to the UK telecoms industry and the UK's wider standing as a reputable country to do business with, where harm has been facilitated by the misuse of UK numbers.
- 1.5 Global Titles created from +44 number ranges are one of the most significant and persistent sources of malicious signalling traffic affecting mobile networks globally. For example, the National Cyber Security Centre is aware of the malicious use of +44 Global Titles, and external evidence indicates that this has included location tracking and the interception of SMS used for 2-step verification (2SV) to target both UK residents and other citizens around the world.
- 1.6 We are using the separate Telecoms Security Act framework to ensure UK mobile operators are protecting their networks from malicious signalling traffic. The focus of this statement is on introducing measures to ensure that UK operators are not a source of signalling attacks.
- 1.7 Ofcom's role as the administrator of UK telephone numbers requires us to ensure the best and efficient use of those numbers. The misuse of Global Titles does not align with this duty and the obligations imposed on number range holders. Promoting network security and resilience is also part of our broader strategy, as referenced in our Plan of Work 2025/26.
- 1.8 Industry-led measures, such as the GSMA Global Title Leasing Code of Conduct and technical controls implemented by some Global Title lessors, have not been effective at preventing malicious signalling. We have concluded that our intervention is necessary and proportionate and we summarise our decisions and reasoning below.

Our decisions – in brief

Having carefully considered responses to our consultation, responses to information requests, and following further engagement with key stakeholders, we have decided to strengthen our existing rules and introduce new rules to tackle misuse of Global Titles. We have decided to:

- ban leasing of Global Titles to third parties by operators that hold UK mobile numbers;
- ban third parties from creating or using Global Titles from sub-allocated numbers;
- publish new Guidance for number range holders on their responsibilities to prevent misuse of their Global Titles and to strengthen our rules to prohibit the misuse of Global Titles by any operator that holds UK mobile numbers; and
- strengthen our rules to prohibit the creation and use of Global Titles from numbers not allocated for use.

Collectively, these measures are designed to significantly reduce malicious signalling from UK Global Titles, thereby providing material benefits to UK and international citizens. They will also enhance the transparency and accountability of operators that use Global Titles.

We consider that these measures will result in a significant reduction in harm to UK and international citizens, which outweighs any adverse impacts on lessors, lessees and end users. Any adverse impacts are likely to be limited, in particular due to the availability and feasibility of alternative ways of providing legitimate mobile services that are currently facilitated by the leasing of Global Titles. Our assessment has concluded that these interventions are appropriate and proportionate.

Next steps

- 1.9 For existing Global Title leasing arrangements, or any existing use of Global Titles that have already been created from sub-allocated numbers, the bans will come into force on **22 April 2026**. We took account of evidence on the impacts of our ban on leasing Global Titles and the time required to migrate to alternative solutions and dissolve legacy arrangements. To mitigate these impacts, we extended the implementation period from the proposed nine months to 12 months for these two measures.
- 1.10 As an exception to the 12-month implementation period, we have decided it is appropriate to allow for an 18-month implementation period (until **22 October 2026**) for two specific migration journeys away from the use of leased Global Titles. We received detailed evidence on the significant challenges arising from the changes to network functionality associated with these migration journeys which distinguish them from others. We also have no evidence of misuse associated with the use of the relevant Global Titles.
- 1.11 Given the significant harms that can occur from a single instance of misuse, we have decided it is necessary and appropriate to prevent range holders from entering into any new Global Titles leasing arrangements **from the publication of this statement**. For the same reasons, we have also **immediately** banned any new creation or use of GTs from sub-allocated numbers.
- 1.12 In addition, the new guidance for range holders to prevent misuse of Global Titles applies **immediately on publication of this statement**. In particular, this guidance explains that we expect any operators who are providing (or considering providing) Global Title modification

services to take appropriate steps to prevent the misuse of their Global Titles, given the potential for these services to generate malicious signalling in the wrong hands.

- 1.13 We will monitor implementation of the rule changes closely to ensure that bad actors are prevented from accessing the global mobile signalling network.
- 1.14 We will continue to work with other regulators to inform and support complementary interventions to tackle misuse of Global Titles in other jurisdictions.

2. Introduction and background

- 2.1 This statement addresses the risks that arise from bad actors gaining access to the signalling systems used between mobile networks around the world. It sets out our decision to use our powers as the UK's telephone numbering authority to prevent the misuse of Global Titles (GTs) that are used for network signalling.
- 2.2 In this introductory section we provide background on mobile network signalling and explain the role of GTs in routing signalling messages. We then outline the security risks associated with misuse of GTs and explain that the leasing of +44 GTs has been identified as a prominent source of malicious signalling.
- 2.3 We also set out our objectives in relation to GTs and mobile network security and summarise the relevant legal framework for this statement, which includes the powers and duties relating to our role as the administrator of UK telephone numbers and relevant elements of the framework for network and service security set out in the Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021).

Global Titles and mobile network signalling

- 2.4 Signalling is the exchange of control information within and between telecoms networks. 2G and 3G mobile networks use the Signalling System No. 7 (SS7) protocol suite to facilitate the provision of mobile services. SS7 signalling messages are used for a range of functions including authenticating handsets to the network, setting up and terminating calls, sending SMS messages, subscriber profile management and to facilitate roaming.
- 2.5 GTs are mobile numbers that mobile operators use as network addresses. These are used to route SS7 signalling messages between networks. Mobile numbers used as GTs are used solely for this purpose and are not assigned to end users.

Figure 2.1: Simplified illustration of the role Global Titles play in signalling, for example to enable a text message to be sent



Source: Ofcom

- 2.6 This statement is about security risks arising from SS7 signalling associated with GTs formed from +44 mobile numbers. These +44 numbers have been allocated to both UK

operators and to operators in the Crown Dependencies.¹ References in this consultation to +44 GTs are references to GTs used by both Crown Dependency and UK operators and references to UK GTs are references to GTs used by UK operators only.

2.7 In this statement, references to mobile signalling and signalling are references to SS7 signalling unless stated otherwise. Such references do not therefore encompass other signalling protocols such as the Diameter protocol used in 4G networks.

2.8 In the paragraphs below, we provide:

- an overview of the security risks associated with SS7 signalling;
- an explanation of GT leasing and how it has increased these security risks; and
- a summary of an initiative by the mobile industry to address these risks.

Overview of SS7 signalling and security risks

2.9 SS7 is a legacy signalling protocol that was not originally designed with security in mind, as it was intended to be used by network operators who were assumed to be trustworthy. It has inherent vulnerabilities that can be exploited by those with access to GTs and the international signalling networks.

2.10 A bad actor with such access may be able to use SS7 signalling to undertake a range of harmful activities including:

- illicitly locating and tracking end users;
- intercepting and diverting calls, messages and data;
- accessing information held by mobile operators, contrary to privacy and data protection requirements; and
- disrupting the operation of networks.

2.11 As we discuss in more detail in Section 3, these activities can lead to a range of harms and in extreme cases, individuals may be at risk of significant physical harm or intimidation.

2.12 Given the global nature of the SS7 signalling networks, these activities can affect end users and networks in the UK and around the world wherever 2G and 3G networks remain in use (see box below).

2.13 Users of 4G and 5G networks can also be affected by malicious SS7 signalling because in many countries, including the UK, 2G and 3G networks operate alongside 4G and 5G networks, providing fallback coverage in areas where 4G or 5G coverage is not yet available. To facilitate seamless hand-off when users move in and out of 4G/5G coverage areas, end users are registered on 2G/3G networks as well as 4G/5G networks. SS7 signalling can therefore be used to determine a user's location even when they are not actively using a 2G or a 3G service.

2.14 The vulnerabilities of the signalling system are well understood, and mobile operators deploy security measures to address them. These measures include signalling firewalls

¹ The Bailiwicks of Jersey and Guernsey and the Isle of Man are constitutional dependencies of the British Crown (the Crown Dependencies). The Crown Dependencies have their own telecommunications legislation and communications regulators. We explain our powers in relation to +44 numbers allocated to operators in the Crown Dependencies in paragraphs 2.61-2.64 below.

which block unauthorised message types, penetration testing to test the security of signalling firewalls and other defences, and monitoring tools which look for suspicious activities.² As we discuss in more detail below, UK mobile operators are subject to security duties which require them to implement measures to secure their networks and signalling resources they make available to others.

- 2.15 However, such security measures cannot completely secure mobile networks against these vulnerabilities. This is partly because some harmful activities use message types that are also used for legitimate services and cannot therefore be blocked by firewalls. Also, bad actors are constantly searching for new techniques to bypass security measures, such as sending signalling messages from multiple GTs on different networks to mask their attacks.

Withdrawal of 2G and 3G mobile networks

2G and 3G networks are being gradually superseded by 4G and 5G mobile networks and will ultimately be withdrawn. However, this process is likely to take some time across the world, during which time the vulnerabilities of SS7 will continue to present a risk to the users of these networks.

UK mobile operators have confirmed to the Government that they will not offer 2G and 3G services beyond 2033 at the latest. 3G networks are being withdrawn first. Vodafone and EE have withdrawn their 3G networks. Three has withdrawn its 3G network across most of the UK and Virgin Media O2 will start withdrawal in 2025. Withdrawal dates for 2G services have not yet been announced.³

The pace of change varies significantly in other countries. Many providers have already withdrawn 2G and/or 3G services or have announced withdrawal dates. Some countries will complete their transition to 4G/5G before the UK, however, many providers in these countries have yet to announce plans to withdraw 2G and 3G services.

UK mobile operators will need to maintain their SS7 signalling access, including GTs, even after UK 2G and 3G networks are fully withdrawn, to facilitate roaming in countries where 2G or 3G networks remain in use. So, even beyond 2033, users of foreign 2G and 3G networks, including UK users roaming on those networks, would continue to be at risk from malicious signalling from UK GTs in the absence of our intervention.

Global Title leasing

- 2.16 GT leasing is the practice whereby a mobile operator enters into a commercial arrangement to allow another operator to use one or more of its GTs. In this consultation, we refer to these parties as lessors and lessees.⁴
- 2.17 Lessees obtain access to the global SS7 signalling network either via their lessor or a transit carrier⁵ and use their leased GTs as network addresses for their signalling node(s). A leased GT therefore enables the lessee to use the global SS7 signalling network to send signalling messages to mobile networks around the world. Historically, leased GTs have been used by

² For example, the GSMA has published guidance - [FS.11 – SS7 Interconnect Security Monitoring and Firewall Guidelines](#). This includes a detailed description of abnormal traffic types that operators should monitor for and provides recommendations about firewall configuration and other countermeasures.

³ Ofcom, 25 February 2025, [3G and 2G Switch-off](#)

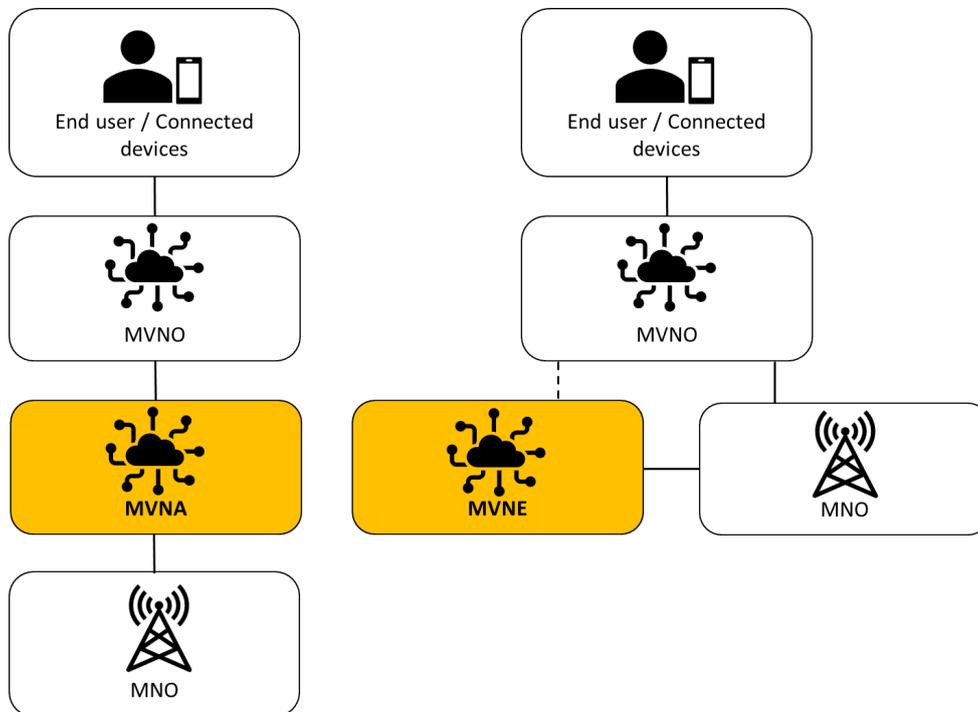
⁴ In some cases, lessees may enter into a commercial arrangement to sub-lease a GT.

⁵ A transit carrier provides commercial conveyance of telecoms traffic between networks.

lessees to facilitate their provision of a variety of services to end-users. These services include:

- Mobile virtual network operator (MVNO) services – an MVNO provides mobile phone services using the radio access network of a mobile operator (the host operator). MVNOs that have their own core network equipment⁶ (often referred to as thick MVNOs or full MVNOs) use GTs to send SS7 signalling messages between their core network equipment and the host network. MVNOs that do not have their own core network equipment (often referred to as thin or light MVNOs) do not use GTs but their services may be facilitated by a mobile virtual network enabler or aggregator (MVNE or MVNA) that uses GTs. Both MVNEs / MVNAs provide thin MVNO services using their own core network equipment. An MVNE acts solely as a supplier to an MNO and an MVNA sells thin MVNO services directly to MVNOs.

Figure 2.2: An illustration of the roles played by an MVNA and MVNE



Source: Ofcom

- Internet of things (IoT) services – a thick or full MVNO that provides mobile services for specialised applications such as vehicles, telemetry and monitoring rather than conventional handsets.
- Outbound roaming – this is an alternative to conventional bilateral roaming agreements between mobile networks, under which a host operator (sponsor) provides a client operator (typically an MVNO) with an additional mobile number. Although it is not visible to the user, this additional number is loaded into the end-user’s SIM alongside their own number and is used to facilitate roaming calls (e.g. for frequent travellers).

⁶ The network elements that provide the control and switching functions for calls, messages and data. In a 2G mobile network, the mobile switching centre (MSC) home location register (HLR), short message service centre (SMSC) and service control point (SCP).

- Network extension – an arrangement whereby a mobile operator extends its coverage (either nationally or internationally) by means of an agreement to allow its customers to use another operator’s network.
- Communications platform as a service (CPaaS) – a cloud-based service with communications functionality that enables developers to integrate telephony/SMS functionality into software applications. Services with 2G/3G capabilities may use GTs to facilitate SS7 signalling with mobile networks.
- Application to Person SMS messaging (A2P SMS) – a SMS service for businesses and public bodies that uses software applications to send large volumes of SMS messages to consumers / citizens, e.g. for appointment confirmation, delivery notifications, two factor authentication.
- Penetration testing – GTs may be used by network security specialists who are commissioned by mobile operators to test the security of their SS7 signalling interfaces.
- Home location register (HLR) lookup – a range of services are referred to as HLR lookup, which is a reference to the Home Location Register, the network element in a 2G network that is interrogated to obtain the information. These include:
 - > Authentication services – typically a reference to services which use SS7 signalling to retrieve information held by other mobile operators regarding their subscribers, sometimes for security/authentication purposes, such as whether there has been a recent SIM-swap⁷ or to identify the current location of the user.
 - > Least cost routing/number authentication – services which use SS7 signalling to retrieve information held by mobile operators about whether a mobile number is valid and the network on which it currently resides. These services may be used for various purposes, e.g. by operators and businesses to optimise the routing of calls or SMS messages.

2.18 Mobile operators may also make their GTs available to companies within their corporate group, as well as to third-party suppliers such as MVNEs who are contracted to provide services to the mobile operator and its customers. We have taken this into account in making our decisions in this statement.

Security concerns about Global Title leasing

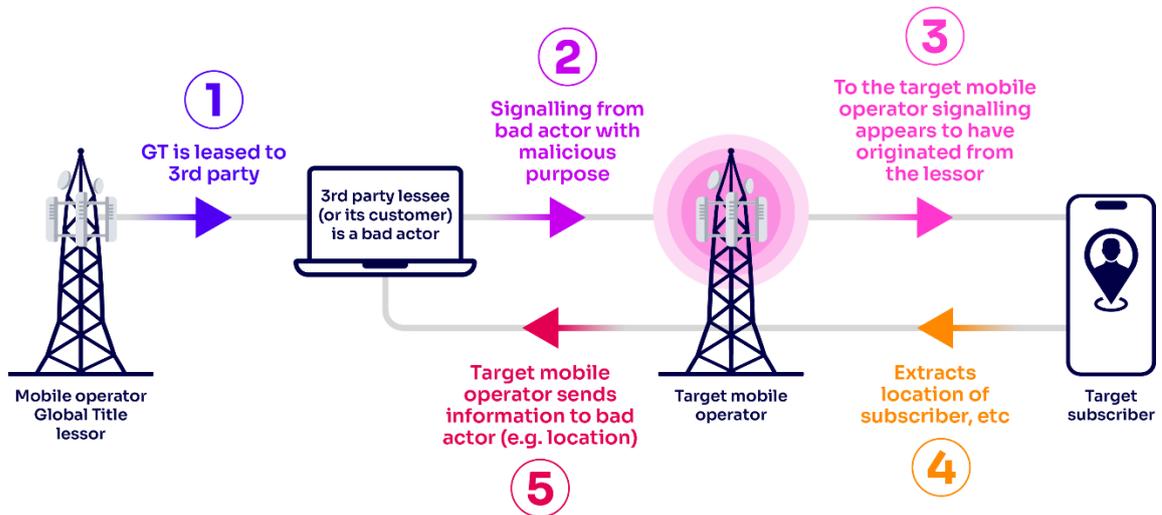
2.19 The consensus among cyber security specialists is that GT leasing is a major security threat to mobile networks because it has made it easier for an expanding number and different types of operators to get access to GTs. This has enabled bad actors to gain access to the global SS7 signalling network and has significantly increased the incidence of harmful signalling activities. The concerns are particularly acute where signalling traffic is not routed via the lessor’s network (a practice known as lessee-only routing) because the lessor is unable to monitor the lessee’s signalling traffic directly for malicious activity.

2.20 GT leasing also reduces the transparency of mobile network signalling, since the signalling traffic appears to a receiving network to have originated from the lessor (typically an established mobile operator), masking its true source. This has made GTs formed from +44

⁷ SIM-swap refers to the transfer of a mobile phone number to a different SIM. It could indicate that someone has fraudulently gained control of the mobile number.

mobile numbers attractive to bad actors who exploit their status as presumptively safe sources of signalling traffic.

Figure 2.3: Simplified diagram of Global Title leasing signalling patterns



Source: Ofcom

- 2.21 We discuss below in Section 3 that GTs formed from +44 mobile numbers have become one of the most significant sources of harmful signalling targeting mobile networks (and their users) around the world, including the UK. The bulk of this malicious signalling is believed to emanate from GTs leased by mobile operators in the UK and Crown Dependencies. This is likely to cause significant harms to users of mobile networks around the world, including the UK and it also harms the reputation of the UK telecommunications sector.
- 2.22 In this statement, we set out our decisions on measures to address harmful signalling originating from UK GTs.

The GSMA Global Title Leasing Code of Conduct

- 2.23 The GSMA is a trade organisation representing mobile operators around the world. It also plays a prominent role in facilitating interoperability between mobile networks. Its work to address concerns about GT leasing is therefore relevant to our assessment.
- 2.24 In March 2023, the GSMA published a Global Title Leasing Code of Conduct (the GSMA Code) in response to concerns about unauthorised use of leased GTs.⁸
- 2.25 The GSMA Code states that unauthorised use typically exploits the vulnerabilities of SS7 (as documented in its SS7 Interconnect Security Monitoring and Firewall Guidelines⁹) and that in extreme cases it may be used for malicious signalling.
- 2.26 The GSMA Code lists a range of concerns about GT leasing, including:
- GT leasing hides the true source and identity of the source of signalling.

⁸ GSMA 2023, [FS.52 Global Title Leasing Code of Conduct](#), version 1.0.

⁹ GSMA 2023, [FS.11 - SS7 Interconnect Security and Firewall Monitoring Guidelines](#)

- The target operator (i.e. the recipient of the lessee's signalling) requires the assistance of either the lessor or the transit carrier to undertake due diligence on the originator.
- Lessees may sub-lease their GTs.
- The target operator has not given consent to be interconnected with the lessee or sub-lessee and may not be aware that a GT is being used other than for the use-case agreed with the lessor.
- GT leasing can adversely impact the target operator and in extreme cases GT leasing can facilitate a denial-of-service attack on the target user's device.
- The target operator may be in breach of data protection or privacy legislation through leakage of personal identifiable information.
- The use of GTs for unauthorised or malicious purposes can lead to reputational damage to the lessor and national numbering resources.¹⁰

2.27 The GSMA Code states that the GSMA considers that alternatives (which do not require leased GTs) are available for most use cases. It strongly recommends that its members do not lease GTs.¹¹

2.28 The GSMA has also asked its members that continue to lease GTs to comply with its voluntary code of conduct designed to minimise the risk of harm.¹² This comprises a set of measures for GT lessors and a further set of measures for transit carriers as summarised in the box below.

¹⁰ GSMA, FS.52 Global Title Leasing Code of Conduct, version 1, section 2.4.

¹¹ GSMA, [FS.52 Global Title Leasing Code of Conduct, version 1, page 8](#).

¹² The GSMA states that penetration testing may require leased GTs. It also excludes outbound roaming and network extensions from the scope of its Code of Conduct even though leased GTs are sometimes used for this purpose.

The GSMA Global Title Leasing Code of Conduct

The main provisions of the GSMA Code for GT lessors are:

- Responsibility – lessors are responsible for the signalling traffic generated by lessees including any liabilities.
- Due diligence – lessors must conduct due diligence prior to granting lessees access to their GTs, including a review of the company and its declared use-case for the leased GT. Lessors must also conduct retrospective and periodic due diligence on existing lessees.
- Transparency – lessors who are full members of the GSMA must declare their leased GTs including lessees' names in their GSMA Roaming Database IR.21 submissions.
- Lessor routing – lessors must require lessees to route all signalling traffic via the lessor's network so that it can be monitored.
- Real time technical controls – lessors must implement technical controls to limit lessees' signalling traffic to message types required for the declared use case.
- Sub leasing – sub leasing of leased GTs is discouraged. Lessors must require lessees to declare any instances of sub-leasing and must apply the Code of Conduct to sub-lessees.
- Transit carrier – lessors must require lessees to use a transit carrier that has signed up to the GSMA Code.
- Signalling tracing – lessors must consent to their transit carrier providing signalling traces when requested so that target operators can determine the source of the suspicious signalling traffic.
- Disclosure – lessors must also disclose details of their lessees where evidence of unauthorised or malicious traffic is provided.
- Threat intelligence – lessors should support and participate in threat intelligence sharing and should not object to being named in such reports.
- Signalling data retention – lessors must retain summary signalling data for a minimum of four months and signalling trace data for at least 10 days.
- Termination – lessors must terminate GT leases when they identify that lessees or sub-lessees have provided false information about their use-cases or about sub-leasing.¹³

The main provisions of the GSMA Code for SS7 transit carriers are requirements to prevent lessees routing signalling traffic to other networks directly (rather than via the lessors' network), block leased GT traffic on request and to support signalling investigations and threat intelligence activities.¹⁴

¹³ GSMA March 2023, FS.52 Global Title Leasing Code of Conduct, version 1, section 5.1, code of conduct requirements for lessors.

¹⁴ GSMA March 2023, FS.52 Global Title Leasing Code of Conduct, version 1, section 5.1, code of conduct requirements for transit carriers.

- 2.29 The GSMA updated the GSMA Code in November 2024. The main changes were:
- removal of transitional provisions in the Code relating to requirements to phase out lessee only routing by 31 December 2023; and
 - provision for lessors to remove real time technical controls on a lessee's traffic that could impair authorised penetration testing upon receipt of authorisation from the target network operator.¹⁵

Legal framework

- 2.30 In the paragraphs below, we have set out a summary of our powers and duties that are relevant to the decisions in this statement, including in relation to numbering. We have also briefly explained our powers and duties relating to telecoms security more broadly. Full details of the relevant legal framework are set out in Annex A1 to this statement.

Our general duties

- 2.31 When making the decisions in this statement we have had regard to our general duties including our principal duty under section 3(1) of the Communications Act 2003 (the Act) to further the interests of citizens in relation to communication matters; and consumers in relevant markets, where appropriate by promoting competition.
- 2.32 In performing our duties, we are required to have regard to the principles under which our 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.¹⁶
- 2.33 We must also have regard, when performing our duties, to a number of matters as they appear to us to be relevant in the circumstances, including:
- the desirability of promoting competition in relevant markets;
 - the desirability of encouraging investment and innovation in relevant markets;
 - 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;
 - the different interests of persons in the different parts of the United Kingdom, of the different ethnic communities within the United Kingdom and of persons living in rural and urban areas.¹⁷
- 2.34 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.
- 2.35 We must also have regard to:

¹⁵ GSMA November 2024, FS 5.2 [Global Title Leasing Code of Conduct, version 1.1](#).

¹⁶ Section 3(3) Communications Act 2003.

¹⁷ Section 3(4) Communications Act 2003. A range of further duties are set out in section 4 of the Communications Act 2003.

- The UK Government’s Statement of Strategic Priorities (SSP) for telecommunications, management of radio spectrum and postal services in accordance with section 2B of the Act.¹⁸ In particular, we must have regard to the security and resilience of the UK’s telecoms networks which is a priority area covered by the SSP.
 - The desirability of promoting economic growth in accordance with section 108 of the Deregulation Act 2015.
- 2.36 Ofcom is required under section 56 of the Act to publish a National Telephone Numbering Plan (the Numbering Plan)¹⁹ which sets out information on the telephone numbers available for allocation, any restrictions on how they may be adopted, any requirements for the purpose of protecting consumers and other restrictions on the other uses to which numbers may be put. The types of restrictions that can be included in the Numbering Plan include:
- a) such restrictions as Ofcom consider appropriate on the adoption of numbers available for allocation in accordance with the plan; and
 - b) such restrictions as they consider appropriate on the other uses to which numbers available for allocation in accordance with the plan may be put.
- 2.37 Ofcom is required to keep the Numbering Plan under review and make any revisions as it thinks fit in consequence of such a review but before doing this, Ofcom must:
- be satisfied that the revision or modification is:
 - > objectively justifiable in relation to the matters to which it relates;
 - > not such as to discriminate unduly against particular persons or against a particular description of persons;
 - > proportionate to what the modification is intended to achieve; and
 - > in relation to what it is intended to achieve, transparent.
 - and publish a consultation.
- 2.38 Section 4 of the Act requires us, when carrying out our functions, including our numbering functions, to act in accordance with the six requirements set out in that section which include to promote the interests of all members of the public in the United Kingdom.

Numbering Conditions

- 2.39 Ofcom has powers under section 45 of the Act to impose conditions on communications providers, including numbering conditions relating to the allocation, adoption and use of telephone numbers.
- 2.40 Section 58 of the Act identifies the type of general conditions Ofcom can impose in relation to the allocation and adoption of numbers which include in particular:
- restrictions on the adoption of telephone numbers by a communications provider, and on other practices by communications providers in relation to telephone numbers allocated to them; and

¹⁸ DCMS, 2019, [Statement of Strategic Priorities for telecommunications, the management of radio spectrum, and postal services](#).

¹⁹ Ofcom, 2022. [The National Telephone Numbering Plan](#).

- requirements on a communications provider in connection with the adoption by them of telephone numbers.
- 2.41 The conditions on the allocation, adoption and use of telephone numbers are mainly set out in the General Conditions of Entitlement (General Conditions), specifically General Condition B1²⁰, and these include an obligation on providers to secure that telephone numbers are adopted or otherwise used effectively and efficiently²¹, which means that numbers should not be misused.
- 2.42 GTs are formed from mobile numbers and are therefore subject to these General Conditions.
- 2.43 Section 59 of the Act also explains that Ofcom can impose conditions on persons other than communications providers, via the Numbering Condition Binding Non-Providers, that relate to:
- the allocation of telephone numbers to such persons;
 - the transfer of allocations to and from such persons; and
 - the use of telephone numbers by such persons.
- 2.44 The conditions that may be set include conditions corresponding to the General Conditions relating to the allocation, transfer and use of telephone numbers (e.g. some of the conditions under General Condition B1).²²

Good practice guide to help prevent misuse of sub-allocated and assigned numbers

- 2.45 In 2022, Ofcom published the Good practice guide to help prevent the misuse of sub-allocated²³ and assigned²⁴ numbers (the Good Practice Guide).²⁵ The guide sets out the steps we expect providers to take, when sub-allocating or assigning numbers to ensure their compliance with General Conditions B1.6, B1.8 and B1.9,²⁶ to prevent valid telephone numbers being misused, including to facilitate scams. These steps relate to due diligence checks before sub-allocating or assigning numbers, ensuring continued compliance and reassessing risk after the transfer of numbers and responding to incidents of misuse. The Good Practice Guide generally applies when those numbers are sub-allocated or assigned to end-users for use for the purposes of, or in connection with, a business. Section 5 of the Good Practice Guide (relating to responding to incidents of misuse) also applies where the end user is a consumer.
- 2.46 While the Good Practice Guide does not reference GT leasing, we consider it to be applicable to GT leasing as it is a form of number sub-allocation.

²⁰ [General Conditions of Entitlement - Ofcom](#)

²¹ General Condition B1.6.

²² Section 59(2) of the Act.

²³ Sub-allocation means the allocation of numbers by a provider to other providers or resellers. It does not include allocation by Ofcom.

²⁴ Assigned means the transfer of numbers to end users, i.e. individuals and businesses.

²⁵ [Good practice guide to help prevent misuse of sub-allocated and assigned numbers](#).

²⁶ See paragraph 2.19 to 2.20 of the Good Practice Guide for details on who is in scope of this guide.

Enforcement powers

- 2.47 We have powers under the Act to take enforcement action against persons that contravene the numbering conditions, including the power to issue penalties, withdraw telephone numbers allocated and suspend a provider's entitlement to provide an electronic communications network or service, or to make associated facilities available.²⁷
- 2.48 Ofcom also has powers under the Act to take enforcement action against persons who persistently misuse an electronic communications network and services.²⁸
- 2.49 We discuss our enforcement powers in the event of non-compliance with our numbering conditions in more detail in Section 5.

Application of the numbering conditions to Global Titles

- 2.50 GTs are formed from mobile numbers and are therefore subject to the conditions applicable to the allocation, adoption and use of telephone numbers as discussed above. It therefore follows that:
- GTs may only be used for the provision of mobile services as specified in the designation for mobile numbers in Part B of the Numbering Plan.²⁹
 - Communications providers must ensure compliance with General Condition B1 in relation to their use of GTs. For example, this means they must ensure the effective and efficient use of numbers used as GTs (B1.6) which includes ensuring numbers are not misused.³⁰ They must also take all reasonably practicable steps to secure their customers comply with the General Conditions (including B1.6) in relation to their use of GTs (B1.8).
 - As the practice of GT leasing involves the sub-allocation of a mobile number, we consider that it is subject to the Good Practice Guide on steps that providers are expected to take to address the risk of misuse.
 - Ofcom may consider taking enforcement action, including withdrawing an allocation of mobile numbers, in the case of misuse relating to GTs.

The Telecommunications (Security) Act 2021 framework

- 2.51 Under the Act³¹, as amended by the Telecommunications (Security) Act 2021,³² public telecoms providers are required to have measures in place to identify and reduce the risks of security compromises, as well as preparing for any future risks. They must also take action after a security compromise has occurred, to limit damage and take steps to remedy or mitigate any damage. The Act also provides for the Secretary of State to make regulations providing for public network and service providers to take specified measures or measures of a specified description, including where a security compromise of a

²⁷ Section 61 and 96A to 104 of the Act.

²⁸ Sections 128 – 130 of the Act.

²⁹ Mobile Service means a service consisting in the conveyance of signals, by means of an electronic communications network, where every signal that is conveyed thereby has been, or is to be, conveyed through the agency of wireless telegraphy to or from apparatus designed or adapted to be capable of being used while in motion.

³⁰ See, for example, paragraph 2.15 of the Good Practice Guide.

³¹ Sections 105A to 105Z of the Act.

³² <https://www.legislation.gov.uk/ukpga/2021/31/contents/enacted>

specified description occurs. The Electronic Communications (Security Measures) Regulations 2022 (the Regulations) made under these provisions also set out measures that providers must take and in brief these include:

- making sure that network equipment that handles sensitive data is securely designed, built and maintained;
- reducing supply chain risks;
- carefully controlling access to sensitive parts of the network; and
- making sure the right processes are in place to understand the risks facing their public networks and services.

2.52 Ofcom has a general duty to seek to ensure that public network and service providers comply with their security duties, including those set out above. As part of this duty, it is working with such providers to improve their security and monitor their ongoing compliance.

The Telecommunications Security Code of Practice

2.53 Pursuant to section 105E of the Act, the Secretary of State may issue codes of practice giving guidance as to the measures to be taken under sections 105A to 105D by public network and service providers. The Secretary of State has published the Telecommunications Security Code of Practice (the Telecoms Security Code)³³ to provide guidance for large and medium-sized public telecoms providers whose security is most crucial to the effective functioning of the UK's telecoms critical national infrastructure.³⁴

2.54 The Telecoms Security Code includes technical guidance on the signalling plane of public telecoms networks (i.e. the signalling functions of networks), comprising:

- guidance on the key concepts of signalling plane security; and
- technical guidance measures which are specific technical measures to be taken by operators to secure their networks.³⁵

2.55 As set out in more detail below, the guidance is principally concerned with measures to secure the signalling plane of operators' own networks, (i.e. measures that operators should take to secure their networks against malicious signalling arriving from other networks). However, there is also guidance about signalling resources that operators allow others to use, such as leased GTs.

³³ DCMS December 2022, [Telecommunications Security Code of Practice](#).

³⁴ Large providers are defined as those with relevant turnover of £1bn or more and medium providers are defined as those with relevant turnover of £50m or more but less than £1bn. Relevant turnover is defined as turnover made from any 'relevant activity' carried out wholly or partly in the UK after the deduction of sales rebates, value added tax and other taxes directly related to turnover. Relevant activity means any of the following: the provision of electronic communications services to third parties; the provision of electronic communications networks, electronic communications services and network access to communications providers; or the making available of associated facilities to communications providers. This is the same as the definition used in the setting of Ofcom's administrative fees.

³⁵ The technical guidance measures are not the only way for operators to comply with the security duties and the Regulations. Operators may choose to adopt different technical solutions or approaches. However, Ofcom may require the operator to explain the reasons why they are not acting in accordance with the provisions of the Code in order to assess whether they are meeting their legal obligations under the security framework.

Key concepts of signalling plane security

- 2.56 The key concepts for signalling plane security set out in the Telecoms Security Code include the following of particular relevance to SS7 signalling:
- Traditionally, signalling networks have been built on the assumption that signalling from other telecoms networks can be trusted. However, that assumption is no longer valid as international interfaces could be exploited by attackers.
 - Operators need to operate on the principle that incoming signalling is untrusted and build signalling security that can validate incoming signalling without impacting core networks' functions.
 - Operators should seek to increase their network's resilience to disruptive attacks from incoming signalling networks and to inhibit the leaking of subscriber or network data over such networks.³⁶

Technical guidance measures

- 2.57 The technical guidance measures set out in the Telecoms Security Code include measures that operators are expected to take to secure the signalling plane of their networks against external signalling attacks. These measures are divided into four groups for phased implementation between March 2024 and March 2028.
- 2.58 There is also a technical guidance measure for large and medium operators concerning number ranges allocated to operators (including GTs formed from such allocations) that they allow others to use for signalling purposes:
- Where operators allow others to use number ranges that have been allocated to them (e.g. GTs, mobile numbers)³⁷, they remain responsible for the activity related to that number range, and any further security implications.³⁸
- 2.59 The guidance therefore specifies that operators are responsible for the signalling activity and any security implications for GTs that they lease.
- 2.60 The Telecoms Security Code does not, however, include any technical guidance about measures that operators should take to address the security implications, for example to monitor their GT lessees' activities or to prevent their lessees from engaging in malicious signalling activities.

Crown Dependencies

- 2.61 As noted above, +44 numbers have been allocated to both UK operators and operators in the Crown Dependencies (CDs) i.e. Jersey, Guernsey, and the Isle of Man. Each CD has its own regulator that is responsible for numbering within that CD and issues licences which regulate the use of numbers within that CD. Where Ofcom has allocated +44 numbers to CD operators, it has done so on behalf of each CD regulator.
- 2.62 We cannot issue or enforce any new rules on the use of +44 GTs based on +44 numbers allocated to CD operators. To that extent, our decisions in this statement relating to the use of GTs will not therefore apply to the use of +44 GTs by CD operators and will not have

³⁶ TSA Code of Practice, paragraphs 2.70 to 2.82.

³⁷ Excluding numbers shared through mobile number portability.

³⁸ DCMS, December 2022. Telecommunications Security Code of Practice, technical guidance measure M3.08.

any direct impact on the use of +44 GTs by CD operators (including their lessees or end users). This is because:

- The use by CD operators of +44 numbers allocated to them is subject to the laws of the relevant CD and any rules imposed by their respective regulators (including conditions in licences issued by those regulators).
- The use by CD operators of +44 numbers allocated to them is not subject to Ofcom's regulatory rules unless the relevant rules are incorporated into the laws of the relevant CD and Ofcom currently has no powers to issue or enforce its General Conditions in relation to CD operators.

2.63 Consistent with their regulatory regime and jurisdiction over CD operators, in September 2024, the Jersey Competition Regulatory Authority wrote to mobile operators and said that it was minded to adopt Ofcom's position in relation to the use of GTs by Jersey operators, subject to the outcome of Ofcom's consultation process.³⁹ In January 2025, the Guernsey Competition and Regulatory Authority issued a consultation setting out their own proposals relating to the use of GTs in Guernsey.⁴⁰

2.64 We received responses to our consultation from CD operators including lessors (and the lessees that rely on these operators) concerning the use of +44 GTs by CD operators based on +44 numbers allocated to them. Their responses provided useful insights on topics such as existing use cases, potential alternatives to GT leasing, implementation periods and other options that may, in principle achieve our objectives. We have taken these responses into account to the extent they contain more general observations that we consider relevant to our decision in relation to UK operators or directly concern the use of +44 GTs based on +44 numbers allocated in the UK. As explained above, our decisions in this statement do not apply to the use of +44 GTs by CD operators based on +44 numbers allocated to them. Therefore, we have not taken into account any specific impacts that it was suggested our decision could have in relation to such use of +44 GTs by CD operators (and their lessees and end users) in our impact assessment.

Our objectives

- 2.65 Taking into account our general and numbering duties identified above, our objectives in determining our approach to GTs and new rules are as follows:
- to significantly and effectively reduce the misuse of UK GTs and the associated harms to UK and international citizens;
 - to improve the transparency and accountability of operators that use UK GTs; and
 - to support the effective functioning of the UK telecommunications sector including by promoting network security and ensuring best and efficient use of telephone numbers.

³⁹ Jersey Competition Regulatory Authority, September 2024. [Global Titles – letter to mobile operators.](#)

⁴⁰ Guernsey Competition and Regulatory Authority, January 2025. [Proposals to ban the leasing of Global Titles from +44 Numbers in Guernsey.](#)

- 2.66 These objectives align with our broader strategy to promote network security and resilience.⁴¹

Impact assessment

- 2.67 Section 7 of the Act requires us to carry out and publish an assessment of the likely impact of implementing a proposal which would be likely to have a significant impact on businesses or the general public, or when there is a major change in Ofcom's activities. The relevant duties in relation to the proposal on which we consulted are summarised above.
- 2.68 More generally, impact assessments form part of good policy-making and we therefore expect to carry them out in relation to a large majority of our proposals. We use impact assessments to help us understand and assess the potential impact of our policy decisions before we make them. They also help us explain the policy decisions we have decided to take and why we consider those decisions best fulfil our applicable duties and objectives in the least intrusive way. Our [impact assessment guidance](#) sets out our general approach to how we assess and present the impact of our proposed decisions.
- 2.69 In Section 3, we present evidence of harms that arise from the misuse of GTs.
- 2.70 In Section 4, we set out our analysis and decisions to address these harms and assess their impact and proportionality.

Equality impact assessment

- 2.71 Section 149 of the Equality Act 2010 (the 'Equality 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.
- 2.72 The Equality Act also requires Ofcom to have due regard to the need to advance equality of opportunity and foster good relations between persons who share specified protected characteristics and persons who do not.
- 2.73 Section 75 of the Northern Ireland Act 1998 (the 'NI 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 have regard to the desirability of promoting good relations across a range of categories outlined in the NI Act. Ofcom's [Revised Northern Ireland Equality Scheme](#) explains how we comply with our statutory duties under the 1998 Act.
- 2.74 To help us comply with our duties under the Equality Act and the NI Act, we assess the impact of our intervention on persons sharing protected characteristics and in particular whether they may discriminate against such persons or impact on equality of opportunity or good relations.

⁴¹ Our 2025/26 [Plan of Work](#) sets out 'internet and post we can rely on' as one of our priority outcomes and identifies 'reliable and secure networks that people can depend on' as an area we will seek to deliver for consumers to achieve this priority outcome.

2.75 We have identified the relevant impacts arising from our decision in footnote 145 of Section 4.

Structure of this document

2.76 Section 3 sets out our evidence about:

- the misuse of GTs and the harms associated with such misuse;
- our assessment of the suitability of the current regulatory framework and industry best practice to address misuse of leased GTs; and
- the measures that operators have implemented to prevent misuse of GTs by lessees and our assessment of their effectiveness.

2.77 Section 4 sets out our decisions on new rules and guidance to significantly reduce the harms associated with GT leasing and other misuse of GTs in order to achieve our objectives. It also sets out our impact assessment and explains why we consider those decisions to be appropriate and proportionate.

2.78 Section 5 sets out how we will implement our decisions, the legal tests we need to satisfy and the enforcement routes available to us in the event of non-compliance with our rules.

2.79 The annexes are set out as follows:

- Annex 1: Legal framework.
- Annex 2: Notification to set and modify General Conditions under sections 48(1) of the Act.
- Annex 3: Notification to set Numbering Conditions Binding Non-Providers under sections 48(1) of the Act.
- Annex 4: Notification to modify the Numbering Plan under section 60(3) of the Act.
- Annex 5: Analysis of responses to the Lessor Information request.
- Annex 6: Guidance for number range holders to prevent misuse of Global Titles (published separately).

3. Misuse of Global Titles

- 3.1 This section outlines evidence of the misuse of GTs for malicious signalling and explains the harms associated with such misuse. This includes presenting findings on misuse of +44 GTs sourced from a specialist in signalling security, which suggest that leased +44 GTs are a main source of malicious signalling.
- 3.2 We also outline the findings from our information requests regarding the leasing of +44 GTs, including summarising the measures that lessors have implemented to help prevent misuse of GTs by their lessees. Finally, we assess whether the current regulatory framework and industry best practice are sufficient to address the misuse of GTs and conclude that further intervention is required to address the harms we have identified.

Harms from misuse of signalling and Global Titles

- 3.3 Our principal duty in section 3(1) of the Act is to further the interests of citizens and consumers, and our general duty in relation to telephone numbers in section 63(1) of the Act includes securing the best use of appropriate numbers. We consider the misuse of GTs to be inconsistent with our duties and addressing the misuse of GTs aligns with our broader strategy to promote network security and resilience. We have therefore considered the evidence of misuse of +44 GTs.
- 3.4 As outlined in Section 2, SS7 is a legacy signalling protocol that has inherent vulnerabilities which can be exploited by those with access to GTs and the international signalling networks.
- 3.5 Bad actors with access to the international signalling networks can use GTs to send SS7 signalling messages. They may access GTs by leasing them from number range holders⁴² or by obtaining their own numbers and misusing the GTs they create. This can enable them to track the geographic location of mobile users, as well as intercept their SMSs and/or redirect voice calls without proper authorisation.
- 3.6 These activities can enable bad actors to:
 - spy on individuals;
 - access personal communications; and
 - compromise security measures (such as SMS security codes) to gain access to other services such as social media accounts and bank accounts.
- 3.7 We also consider that these types of activities appear likely to be instances of personal data breaches⁴³ that individuals are entitled to be protected from.
- 3.8 The harms to those affected can include:

⁴² Number range holder / range holder refers to a communications provider with an allocation of numbers from Ofcom.

⁴³ We note that the potential harms we discuss in this section match some of the individual harm categories set out in the ICO's Data Protection Harms Taxonomy, such as loss of control of personal data, bodily harm, unwarranted intrusion and financial harm. <https://ico.org.uk/media/about-the-ico/documents/4020144/overview-of-data-protection-harms-and-the-ico-taxonomy-v1-202204.pdf>

- inconvenience, embarrassment and reputational harm associated with the disclosure of personal communications;
 - loss of personal data and privacy;
 - financial losses and emotional harm relating to fraud; and
 - in more extreme cases, some individuals may be at risk of significant physical harm, abduction and/or intimidation.
- 3.9 We therefore consider that the misuse of GTs poses a significant threat to UK and international citizens. We also note there may be a higher risk of harm for some high-profile individuals (e.g. those holding public office or those with certain religious or political views) as they may be more likely to be the target of signalling attacks. In some cases, severe and irreparable harms could potentially arise from a single instance of misuse of network signalling.
- 3.10 The misuse of GTs could also lead to harm to the wider telecommunications sector. For example:
- Malicious signalling arising from +44 numbers can reduce trust in UK telephone numbers and potentially harm the reputation of the UK's telecommunications industry.
 - Malicious signalling that leads to a breach in network security of UK and international telecoms operators could further require these operators to deploy extra resources and incur costs to handle these incidents.
 - In rarer but possible scenarios, malicious signalling could also lead to network outages, thereby impairing the operations of mobile networks and adversely affecting significant numbers of UK and international mobile users.
- 3.11 In the following sub-section, we outline the evidence of GT misuse that can lead to the harms outlined above before we go on to consider whether regulatory intervention is required and what form that could take.

Evidence of malicious signalling

- 3.12 In this sub-section, we set out the evidence of harm we have identified from:
- a report commissioned by Ofcom on malicious signalling associated with +44 GTs;
 - analysis of responses from our information request regarding the leasing of +44 GTs;
 - a report from GSMA about the risks of GT leasing;
 - a statement from the National Cyber Security Centre (NCSC) regarding the threats of GT misuse; and
 - media reports regarding malicious signalling.

Malicious signalling associated with +44 Global Titles from the Enea Report

- 3.13 To get a better understanding of malicious signalling associated with GTs identified from +44 mobile numbers, we commissioned a report from Enea⁴⁴, a specialist in signalling security⁴⁵ including SS7 (the Enea Report).⁴⁶

The Enea Report

The Enea Report relates to SS7 signalling activity monitored by Enea across its signalling firewalls in mobile networks between 1 January 2020 and 14 February 2024. During this period, Enea associated thousands of +44 GTs with malicious signalling activity.

Enea found that, in recent years, +44 GTs have been among the most significant and persistent sources of high-risk and malicious mobile signalling traffic observed across all of its SS7 signalling firewalls worldwide. It considered this to be a result of exploitation of commercially leased +44 GTs and signalling infrastructure by a range of companies, generally under the pretence of telecoms service delivery.

The Enea Report includes comparative measures which give insights about the prominence of +44 GTs as sources of malicious signalling compared with those in other countries. These include:

- Threat Source Score – Enea has a proprietary algorithm which rates signalling violations according to threat severity to provide an overall score for each country based on the country code of the GT. Using this algorithm, Enea ranked +44 as the sixth highest scoring country globally over the period.⁴⁷ Enea described this score as an extremely high indicator of risk, reflecting factors such as the relative volume and types of malicious signalling observed.
- Signalling violations – Enea uses a broad measure of all suspicious signalling messages which because of its wide scope includes malicious signalling and others which may be benign such as messages generated by misconfigured network elements and messages generated by certain services such as fraud detection checks. With this measure, Enea rated +44 GTs as the third largest source of signalling violations over the period.
- Key threat types – The Enea Report included a detailed comparative measure which examined the relative incidence of four key types of malicious signalling which it considered, in aggregate, to be a reliable proxy indicator of targeting of mobile users by nation state actors.⁴⁸ Enea found there was a much higher relative incidence of

⁴⁴ Formerly known as Adaptive Mobile.

⁴⁵ Enea provides signalling firewalls to many mobile operators around the world. It also provides threat intelligence services to its mobile operator customers and other organisations including cyber security agencies. These services draw on signalling data gathered from its firewalls giving it an international view of malicious signalling targeting mobile networks. Enea uses sophisticated analysis techniques to detect anomalous signalling patterns that may be malicious and to identify the source GT. Enea can often attribute malicious signalling to a particular actor, for example, the lessee of the GTs used.

⁴⁶ Enea March 2024, Signalling Intelligence Layer – State of the Nation Report for Ofcom (unpublished).

⁴⁷ No other G7 nation or EEA member state appeared in the top 10 ranking.

⁴⁸ The key threat types are unauthorised signalling commands on interconnect links for location tracking, unauthorised signalling commands on interconnect links for location tracking or profile manipulation, coordinated attacks from multiple sources and coordinated attacks from multiple countries.

these four types of malicious signalling activity from +44 GTs than the overall average in its dataset for this period.

- Snapshot analysis – Enea provided a snapshot of its analysis of signalling source and target information involving +44 GTs spanning a single day (13-14 February 2024). This showed a preponderance of three types of signalling event sequences which are almost certainly malicious signalling. These were coordinated attack sequences originating from multiple different +44 GTs against the same target subscriber or network element, coordinated attack sequences originating from +44 and foreign GTs, and the use of malformed signalling messages to evade an operator’s signalling defences.

The Enea Report included other material illustrating the prominent role of +44 GTs in malicious signalling:

- Case studies of companies which Enea has identified as prominent sources of malicious SS7 signalling globally. These included [X], [X] and [X]. These companies have been associated with GTs from multiple countries with +44 GTs being among the most numerous used by all three companies.⁴⁹
- A case study involving the surveillance of a mobile user in Latin America over an approximately two-year period, during which several +44 GTs were among the most prominent signalling sources among hundreds of GTs used for the surveillance. Enea assessed the origin of the signalling from +44 GTs to be in the control of [X], a UK based operator.⁵⁰

Enea’s view was that the comparative prominence of +44 GTs as a source of malicious signalling could reflect the relative accessibility of +44 GTs, the lack of oversight of leasing arrangements, and the attractiveness of +44 GTs as presumptively trusted senders of signalling traffic.

3.14 The Enea Report included examples of 64 individual +44 GTs and groups of +44 GTs⁵¹ associated with malicious signalling activity over the period.^{52 53}

3.15 We also note that, in its consultation on GTs, the Guernsey Competition and Regulatory Authority (GCRA) noted that, in October 2024, it had commissioned Enea to provide analysis and its specialist reports to assess the current and potential future threat posed by the leasing of GTs by Guernsey-based operators. GCRA reported that Enea had confirmed that a GT leased by a Guernsey operator was used by a company [X] that Enea considered to be a bad actor or attack group in its own right, and likely pursues signalling attack campaigns on a larger scale than previously suspected.⁵⁴

⁴⁹ It is likely that these companies were using leased +44 GTs because none of them have been allocated UK mobile numbers by Ofcom.

⁵⁰ It is likely that leased +44 GTs were used because [X] has not been allocated UK mobile numbers by Ofcom.

⁵¹ Multiple GTs from a block of mobile numbers.

⁵² One of the examples provided by Enea was a GT formed from an 070 number, a range designated for use for personal numbers rather than mobile numbers.

⁵³ We describe our analysis of these examples in more detail below. However, we note in particular, that approximately a quarter of these examples related to GTs leased by a UK lessor [X].

⁵⁴ Guernsey Competition and Regulatory Authority, January 2025, [Proposals to Ban the Leasing of Global Titles from +44 numbers in Guernsey](#), pages 5 and 6.

Revised analysis of responses to our Lessor Information Request

- 3.16 In January 2024, we issued an information request (the Lessor Information Request) to seven operators, who confirmed in a previous information request (the January 2023 Information Request)⁵⁵ that they have leased one or more of their GTs or otherwise allowed one or more of their GTs to be used by another company. This includes operators that offer services in the UK as well as operators that offer services in the Crown Dependencies (all of which use +44 numbers).
- 3.17 The responses to the Lessor Information Request provided information about which GTs have been leased and to whom, the use cases stated by the lessees, the revenue generated by lessors from these GTs, and what controls they have in place to mitigate the risk of misuse.
- 3.18 We have updated our analysis to reflect new information obtained since our consultation:
- The ‘Additional Lessor’ – in August 2024, [X] informed us that it leased or otherwise allowed its GTs to be used by other companies. In September 2024, we sent this lessor an Information Request.
 - In February 2025, another operator [X] provided additional information indicating that a company [X] we had previously classified as a lessee was using the operator’s GTs solely in connection with the provision of services to the operator. We have therefore decided to reclassify this ‘lessee’ as a supplier.⁵⁶
- 3.19 See Annex A5 for full details of the responses we received.
- 3.20 This new information raised the incidence of GT leasing slightly. Our revised analysis of the responses indicated that:
- Lessors have 85⁵⁷ GT leasing arrangements with 75⁵⁸ different lessees (as seven leased GTs from more than one operator).⁵⁹
 - 81⁶⁰ of these arrangements were with third parties and four⁶¹ were with suppliers who used the GTs solely to support the provision of services to the lessor.
 - The number of third-party lessees per lessor ranged from 1 - 22. Of the third-party lessees, 74⁶² i.e. a vast majority of 91%⁶³ were customers of the four largest lessors.⁶⁴

⁵⁵ In their responses to a previous information request in January 2023 which was sent to all operators to whom Ofcom and its predecessors have allocated +44 mobile numbers (including operators in the Crown Dependencies).

⁵⁶ Meeting with [X] 4 February 2025.

⁵⁷ The corresponding figure presented in the July 2024 consultation was 80.

⁵⁸ The corresponding figure presented in the July 2024 consultation was 70.

⁵⁹ 74 of the third-party lessees (94%) were customers of the four largest lessors and we note that [X], a UK lessor, had the second highest number of lessees.

⁶⁰ The corresponding figure presented in the July 2024 consultation was 78.

⁶¹ The corresponding figure presented in the July 2024 consultation was two.

⁶² The corresponding figure presented in the July 2024 consultation was 74.

⁶³ The corresponding figure presented in the July 2024 consultation was 94%.

⁶⁴ [X] response dated 16 February 2024, [X] response dated 13 February 2024, [X] response dated 16 February 2024, [X] response dated 27 February 2024, [X] response dated 13 February 2024, [X] response s

- 3.21 The stated use cases of the lessees (as identified by the eight lessors) included a range of mobile services (such as MVNO services and outbound roaming) and services that utilise information held by mobile operators (such as number authentication). We provided an overview of these service types in Section 2.
- 3.22 We reviewed the information on GTs submitted in responses to our Lessor Information Request and matched those against the +44 GTs that have been identified to be a source of malicious signalling from the Enea Report. We found that:
- Approximately 40% of the +44 GTs (27 GTs/GT groups⁶⁵), that were identified as a source of malicious signalling, were leased from three of the eight operators who we have identified as lessors (and who were sent the Lessor Information Request ([redacted], [redacted] and [redacted]).
 - Approximately 30% of the +44 GTs (21 GTs/GT groups) that were identified as a source of malicious signalling, were formed from mobile numbers allocated to four UK operators, ([redacted]). We had not previously identified these as lessors because they had previously indicated that they did not lease GTs. This suggests that either the sources of the malicious traffic are the operators themselves and / or they are leasing some of their GTs.
 - Approximately 25% of the +44 GTs (17 GTs/GT groups), that were identified as a source of malicious signalling, were formed from unallocated number ranges (mobile numbers that are not currently allocated to operators). These numbers were formerly allocated to four operators ([redacted]) but had been withdrawn by Ofcom (e.g. after the operator went out of business). Our numbering rules prohibit the adoption and use of unallocated number ranges, meaning GTs should not have been created from these numbers or been in use.
- 3.23 Overall, our analysis indicates that malicious signalling has arisen from +44 GTs that have been leased out to third parties and it could also arise from GTs that have been owned or used by number range holders themselves. As we discuss in more detail in Section 4, we are taking steps to stop the use of GTs created from mobile numbers in unallocated number ranges and the misuse of GTs by number range holders themselves, in addition to addressing the harms arising from the leasing of GTs.

GSMA Mobile Telecommunications Security Landscape

- 3.24 The GSMA publishes an annual report on security threats to mobile networks that it has tracked both from public sources and within its membership. In its report, published in February 2024⁶⁶, the GSMA noted that GT leasing can introduce security risks for mobile operators and their customers because it enables additional entities to gain access to the global SS7 signalling network and reduces routing transparency.
- 3.25 The GSMA cited the Lighthouse Reports and CitizenLab reports (referenced below) and noted that, in the year preceding publication in February 2024, there had been several reports of attacks from GTs that had been leased to third parties.

dated 13 February 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

⁶⁵ Multiple GTs from a block of mobile numbers.

⁶⁶ GSMA, February 2024. [Mobile Telecommunications Security Landscape](#).

NCSC statements on Global Title misuse

- 3.26 Concerns about the security of legacy signalling protocols including SS7 have been a key strand of the NCSC’s Active Cyber Defence Programme.⁶⁷
- 3.27 In its second annual report in 2019 on the Active Cyber Defence Programme, NCSC noted that:

[SS7] “was originally created in 1975 and has undergone little fundamental change since then. SS7 has no real security built in and given how the telecoms sector has evolved it can now be trivial to exploit SS7 weaknesses, depending on the network. Exploiting those weaknesses can allow an attacker to geolocate a user’s phone, reroute SMS messages and voice calls so that they can be intercepted, get networks to release encryption keys and other nefarious actions. It is impractical to expect a change in the standard for SS7, but we believe we can better protect users of UK networks from these sorts of attacks while simultaneously ensuring that the next generation telecoms signalling protocol (DIAMETER) is better secured.”⁶⁸

- 3.28 Before our consultation, NCSC provided Ofcom with the following statement regarding GT misuse:

“The NCSC is aware that +44 Global Titles have been exploited for malicious purposes, such as location tracking and the interception of SMS used for 2-step verification (2SV) to target both UK residents and populations globally. Our Active Cyber Defence (ACD) Programme has also previously highlighted that a small number of +44 Global Titles seem to be responsible for a disproportionate volume of malicious SS7 traffic.

The NCSC works closely with industry on a voluntary basis to enhance industry practices and safeguard the UK’s citizens. We therefore welcome this world-leading consultation on regulatory options in support of our mission in ‘Making the UK the safest place to live and work online.’”

Media reports of malicious signalling

- 3.29 The vulnerabilities of SS7 signalling and its use to invoke malicious signalling have also been reported by the media (and we note that these reports are becoming increasingly prevalent).
- 3.30 Several articles have been published that highlight the use of +44 GTs for malicious purposes including:
- IrpiMedia, an Italian investigative journalism project, reported on the activities of an Italian company, Carro. IrpiMedia reported that GTs leased from a UK operator and operators in other countries were used to obtain the location of mobile users in the Middle East and North Africa.⁶⁹
 - A recent Economist article outlined security vulnerabilities of SS7 signalling which can be exploited to monitor a user’s location or to monitor voice and text messages. It cited

⁶⁷ <https://www.ncsc.gov.uk/section/active-cyber-defence/>

⁶⁸ NCSC, July 2019. [Active Cyber Defence \(ACD\) – The Second Year](#).

⁶⁹ IrpiMedia, 8 May 2024, (in Italian) [Chi sono gli operatori telefonici sfruttati dall’azienda italiana di sorveglianza Carro](#) (Who are the telephone operators exploited by the Italian surveillance company Carro).

claims that GTs from a mobile operator in the Channel Islands had been used to gain access to SS7 for malicious signalling attacks.⁷⁰ It also cited claims that these vulnerabilities allowed Russian hackers to locate and spy on Ukrainian political figures.

- A Guardian article about a joint reporting project with the Bureau of Investigative Journalism, referred to allegations that Israeli intelligence company Rayzone Group appeared to have leased Global Titles from a Crown Dependency operator⁷¹, potentially enabling its clients to track the locations of mobile phones across the world.⁷² An article by the Bureau of Investigative Journalism, about the same project, reported that private surveillance companies have been using GTs leased from two Crown Dependency operators to enable surveillance of people around the world. It referred to a sample of data seen by the Bureau, believed to relate to only a part of Rayzone Group's operations, which showed that between August 2019 and April 2020 the company enabled the targeting of more than 60 countries, with thousands of signals being sent into more than 130 different networks. The report also described how GTs leased from two Crown Dependency operators by Rayzone Group were used in combination with GTs from other countries to attempt to locate Princess Latifa al-Maktoum as she attempted to evade her father, Sheikh Mohammed al-Maktoum, the ruler of Dubai.⁷³

3.31 Several other media reports focus on malicious signalling from GTs that originated from other countries including:

- A report in the Guardian referred to allegations by a whistleblower that SS7 signalling emanating from Saudi Arabia had been used to track Saudi registered mobile phones roaming in the USA.⁷⁴
- In its report, Ghost in the Network, Lighthouse Reports linked GTs associated with a Swiss national to malicious signalling activity including (i) the use of leased GTs to extract personal data (including location data) from a journalist's phone in Mexico, and the journalist was subsequently murdered the next day; and (ii) the use of GTs in South East Asia and Israel, to take over Telegram and other accounts by redirecting SMS messages used to secure them.⁷⁵
- A report by CitizenLab described the vulnerabilities of SS7 signalling in detail. It also referred to threat intelligence data concerning surveillance of mobile users in African countries using SS7 signalling. It said these attacks originated from GTs owned by Vietnamese operator, Gmobile, which is owned by the Vietnam Ministry of Public Security.⁷⁶

⁷⁰ The Economist, 17 May 2024, It is dangerously easy to hack the world's phones. See also 404 Media report, 16 May 2024, [Cyber Official Speaks Out, Reveals Mobile Network Attacks in U.S.](#)

⁷¹ The article referred to invoices seen by the Guardian and the Bureau of Investigative Journalism that appeared to show that, in 2018, Rayzone had used an intermediary to lease a GT from a Crown Dependency operator.

⁷² The Guardian, 16 December 2020, [Israeli spy firm suspected of accessing global telecoms networks via Channel Islands.](#)

⁷³ The Bureau of Investigative Journalism, 16 December 2020, [Spy Companies using Channel Islands to Track Phones Around the World.](#)

⁷⁴ The Guardian, 29 March 2020, [Revealed: Saudis suspected of phone spying campaign in US.](#)

⁷⁵ Lighthouse Reports, May 2023, [Ghost in the Network: how a Swiss tech expert runs a global phone surveillance system.](#)

⁷⁶ CitizenLab, Munk School of Global Affairs & Public Policy, University of Toronto, October 2023. [The Network Effect of Telecommunications Vulnerabilities for Location Disclosure.](#)

- Two articles by Commsrisk referred to number portability check services and HLR lookup services, both of which are use cases for leased GTs. These articles raised concerns about whether such services are always consistent with data protection legislation and whether service providers always have permission from target mobile operators to access the data they hold.⁷⁷

Summary of evidence of malicious signalling

- 3.32 As set out above, we have found evidence of significant volumes of malicious signalling attacks originating from +44 GTs that been leased, or used by third parties, or are used by number range holders themselves. These findings are consistent with the general consensus among cyber security specialists that GT misuse is a major risk to mobile networks. In particular, GT leasing has broadened access to GTs and reduced transparency of ownership of GTs, thereby greatly increasing the likelihood of signalling misuse.
- 3.33 Malicious signalling attacks can lead to a range of harms to consumers / citizens including personal data breaches and financial losses. In more extreme cases, some individuals may be at risk of physical harm, abduction and/or intimidation as a result of bad actors tracking their locations. Furthermore, malicious signalling may have broader implications on the wider telecommunication sector by damaging the reputation of network providers and impairing or disrupting the operation of mobile networks.
- 3.34 It is difficult to quantify the scale of harm associated with malicious signalling from +44 GTs given the types of harm which arise and the clandestine nature of these activities. Indeed, the Enea Report identified potential GT misuse by some UK operators that we were not aware leased their GTs. However, the volume and geographic distribution of malicious signalling from +44 GTs observed by Enea suggests that it is significant. Signalling attacks tend to be globally distributed, meaning there is a risk of harm to both UK and international citizens. Moreover, given the nature of the activities and the actors involved, the harms can be severe and irreparable in some cases.
- 3.35 We recognise that the scope for malicious signalling from leased +44 GTs will gradually reduce as 2G and 3G networks are withdrawn. However, the timing of the final withdrawal of 2G and 3G networks across the world is as yet unknown, so we expect that mobile users will continue to be at risk from malicious signalling for some time to come. In the meantime, the risk of misuse of UK GTs may increase if, for example, more UK operators were to decide to start leasing their GTs.
- 3.36 Overall, we have identified three key sources of malicious signalling and harm due to the misuse of +44 GTs:
- a) **Misuse of GTs by third parties** – Our analysis of the misuse of +44 GTs from the Enea Report and information on GTs provided in responses to our Lessor Information Request indicates that malicious signalling has originated from +44 GTs that have been leased to third parties.⁷⁸ This type of misuse is further reported by the GSMA’s Security Report, other media reports and the statement from NCSC. Our analysis also indicates that malicious signalling has originated from operators that are neither number range holders nor known to have leased GTs from number range holders that have told us they

⁷⁷ Commsrisk, 3 February 2025, [How the Telecoms Industry Legitimises Theft](#). Commsrisk, 25 February 2025, [Transunion and the Murky World of HLR Queries](#).

⁷⁸ Approximately 60% of the GTs and GT groups listed in ENEA’s examples were attributed to UK operators.

are lessors – this implies that it is possible that some malicious signalling could have originated from +44 GTs that have been created from sub-allocated numbers.

- b) **Misuse of GTs by number range holders** – Our analysis of the misuse of +44 GTs from the Enea Report and information on GTs provided in responses to our Lessor Information Request indicates that malicious signalling has originated from some number range holders. It is therefore possible that some of this could be due to the misuse of +44 GTs by number range holders themselves, which may be in connection with the provision of a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
- c) **Creation and misuse of GTs from numbers that have not been allocated for use** – Our analysis of the misuse of +44 GTs from the Enea Report and information on GTs provided in response to our Lessor Information Request indicates that malicious signalling has originated from GTs that were formed from unallocated number ranges (mobile number ranges that are not currently allocated to operators). This could therefore imply that some operators have created and misused GTs from numbers that are not allocated for use.

3.37 While not all misuse of +44 GTs has arisen from use of UK GTs (because some +44 numbers are allocated to Crown Dependency operators), we have identified evidence of significant malicious signalling arising from the misuse of UK GTs. The broader evidence of misuse also indicates the potential for further harms to UK and international citizens if the issues we have identified with potential access by bad actors to UK GTs are not addressed.

Current measures to address harms

- 3.38 We have identified significant sources of harm and potential harm from the misuse of UK GTs above. We now consider whether further intervention is required by assessing whether existing regulatory obligations, regulatory guidance and industry best-practice guidance (outlined in Section 2) as well as measures taken by the lessors themselves are sufficient to address the harm. These include:
- the Telecoms Security Act framework;
 - our General Conditions of Entitlement, in particular Condition B1 relating to numbering which applies to communications providers (and our Good Practice Guide);
 - the GSMA Code; and
 - control measures applied by GT lessors.

The Telecoms Security Act framework

- 3.39 As set out in Section 2, providers of public networks and services are subject to the revised Telecoms Security Act framework. This framework includes overarching security duties, including a duty to take the specific measures set out in the Regulations, and technical guidance on the measures to be taken by large and medium-sized providers set out in the Telecoms Security Code.
- 3.40 As previously noted, the primary focus of the Telecoms Security Act framework is on measures that operators are expected to take to secure their networks from malicious signalling from external sources, i.e. incoming signalling traffic. In contrast, the misuse of an operator's GT relates to outbound signalling, i.e. malicious signalling originating from the GT, typically targeting other networks.
- 3.41 We recognise that the Telecoms Security Code includes guidance about such outbound signalling in the technical guidance concerning numbering resources that are made available to third parties for signalling, such as leased GTs.⁷⁹ It explains that lessors are responsible for lessees' signalling activities including any security implications. However, in contrast to other aspects of signalling security, the Code does not identify specific measures that large and medium-sized providers are expected to take to address the security implications of activities such as GT leasing (for example, the Telecoms Security Code does not set out technical controls to restrict the types of signalling message that lessees can transmit).
- 3.42 We also note that, while the security duties apply more broadly, the Telecoms Security Code applies only to large and medium-sized providers in the UK and does not apply to small providers (Tier 3 Providers – those with relevant turnover below £50m). This tiering is material because the evidence we have gathered indicates that some of the lessors we are aware of may be classified as Tier 3 Providers for the purposes of the Telecoms Security Code.
- 3.43 While providers are likely to be required to take at least some measures to address security risks arising from GT leasing to meet their security duties, we do not consider the Telecoms Security Act framework is likely to sufficiently address the different types of harms we have identified, in particular given the lack of specific measures that address the risks from GT leasing and the more limited scope of the Telecoms Security Code. We consider that a more comprehensive approach that applies to providers of all sizes is needed to address the harms we have identified and achieve our objectives.

Our General Conditions of Entitlement and Good Practice Guide

- 3.44 As discussed in Section 2, Condition B1 of our General Conditions requires communications providers to comply with various rules relating to numbering. In particular:
- a) B1.6 requires communications providers to ensure the effective and efficient use of numbers which includes ensuring numbers (including GTs) are not misused.

⁷⁹ DCMS, December 2022. Telecommunications Security Code of Practice, technical guidance measure M3.08.

- b) B1.8 requires communications providers to take all reasonably practicable steps to secure their customers comply with the General Conditions (including B1.6) in relation to their use of numbers.
- 3.45 Our Good Practice Guide sets out the steps we expect communications providers to take to help prevent telephone numbers being misused when they are sub-allocating numbers (to other operators) or assigning numbers to business customers to address the risk of numbers being misused, including to ensure compliance with General Conditions B1.6 and B1.8.
- 3.46 General Condition B1.3 also prohibits the use of telephone numbers by communications providers unless that number is currently allocated by Ofcom.
- 3.47 We have set out below whether and how our existing General Conditions may be effective in addressing any of the harms we have identified above.

Misuse of Global Titles by third parties

- 3.48 We consider that General Condition B1.8 (in combination with B1.6) would be applicable in the event a communications provider leases a GT to a third party and that third party misuses the GT. These General Conditions could therefore potentially be relied on to address the current and potential harms we have identified from misuse associated with GT leasing by third parties.
- 3.49 As discussed in Section 2, the Good Practice Guide specifies that operators should take various steps, including:
- Undertake due diligence checks before sub-allocating or assigning numbers including 'Know Your Customer' (KYC) checks, enquiries about the intended use of the numbers and assessing the risk of misuse.
 - Regularly reassess the risk of misuse and monitor for evidence of misuse.
 - Investigate incidents of suspected misuse and take action to prevent further incidents of misuse, including where appropriate withdrawing the sub-allocation or assignment.
 - Ensure that the measures applied reflect the risk of misuse associated with the intended use of the numbers.
- 3.50 The measures set out in the Good Practice Guide are generally applicable to GT leasing (as it is a form of number sub-allocation) and lessor compliance with it could in principle help to reduce the risk of misuse of leased GTs. However, we consider that it is too general in its current form to be effective in addressing the risk of misuse associated with GT leasing by third parties. This is because the Good Practice Guide is currently focused on preventing numbers being sub-allocated or assigned to businesses and individuals that use them to

facilitate scams; it does not contain any specific guidance on measures that would reduce the risk of misuse of leased GTs, such as:

- Detailed enquiries to establish that a prospective lessee genuinely intends to provide a service that requires a leased GT.
- Technical measures such as lessor routing and real time technical controls to restrict signalling to agreed message types.
- Proactive monitoring of lessees' signalling traffic for misuse and supporting measures such as signalling data retention.

3.51 We also note that the Good Practice Guide was published in November 2022, and we have seen evidence of continuing harms from the misuse of GTs since that date.

3.52 While the guidance in the Good Practice Guide is applicable to GT leasing, and lessor implementation could in principle reduce the risk of misuse of GTs, we consider that relying on B1.6 and/or B1.8 (and our Good Practice Guide) in their current form is not sufficient to address the harms from GT leasing due to their misuse by third parties and would not enable us to meet our objectives.

3.53 For the same reasons, we do not consider relying on B1.6 and/or B1.8 (and our Good Practice Guide) in their current form are sufficient to address the harms from the creation and misuse of GTs from sub-allocated numbers.

3.54 In Section 4, we set out our considerations of why the development of guidance that specifically addresses GT leasing would not have been an effective measure to address the harms we have identified from GT leasing and enable us to meet our objectives.

Misuse of Global Titles by range holders

3.55 As noted above, we have identified misuse of GTs by range holders where the source of the malicious signalling is a number range holder itself, which may be in connection with the provision of a service to a customer.

3.56 If malicious signalling arises from a range holder's direct use of their own GT, then we do not consider they would be using the relevant telephone number effectively or efficiently as required by General Condition B1.6. We could therefore make use of condition B1.6 to address any malicious signalling arising directly from a range holder and we are making clear that we would be prepared to make use of these powers in the context of this form of misuse of GTs. A potential example of this type of malicious signalling is where a range holder provides a service identifying the location of a subscriber of another network without that subscriber's knowledge.

3.57 We also consider that a range holder's failure to take reasonably practicable steps to prevent misuse when providing a service to a customer, (using a GT as an input) that has the potential to generate malicious signalling, could be in breach of B1.8 (in combination with B1.6). For example, the range holder may provide a service that provides the customer with application programming interfaces (APIs) that enable it to generate SS7 signalling message indirectly. In this case, the service provided by a range holder may, on the face of it, have a legitimate purpose, but is also capable of being used to generate malicious signalling. Malicious signalling may arise because the range holder has taken insufficient steps to prevent the misuse, such as technical controls, Know Your Customer checks and checks on the intended use of the service.

- 3.58 Our Good Practice Guide sets out the steps we expect providers to take to help prevent telephone numbers being misused, including to ensure compliance with General Conditions B1.6 and B1.8. We note that the Good Practice Guide is focused on preventing misuse of sub-allocated and assigned numbers and is silent on GT misuse. Some of the measures it sets out could, however, be relevant to addressing the risk of misuse by a range holder when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
- 3.59 In Section 4, we set out our reasons why development of guidance on preventing GT misuse is necessary to provide clarity to range holders on the types of steps they are expected to take to ensure compliance with General Conditions B1.6 and/or B1.8 when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.

Misuse arising from the creation of Global Titles from numbers that have not been allocated for use

- 3.60 As noted above, we have identified harm associated with the creation and misuse of GTs from numbers that have not been allocated for use.
- 3.61 The General Conditions prohibit the use of numbers that have not been allocated. In particular, General Condition B1.3 prohibits the use of telephone numbers by communications providers unless that number is currently allocated. These rules apply in relation to the creation and use of GTs from numbers that have not been allocated in the same way that they apply to the use of other telephone numbers that have not been allocated for use.
- 3.62 We consider we can rely on General Condition B1.3 in the event of the creation and misuse of GTs from numbers that have not been allocated. We therefore consider our existing rules are sufficient to address misuse by communications providers arising from the creation of GTs from numbers not allocated for use.

Misuse of Global Titles by operators allocated numbers

- 3.63 Our General Conditions only apply to communications providers (which are defined in the General Conditions as a person who provides an Electronic Communications Network or an Electronic Communications Service).⁸⁰ We have therefore considered the extent to which misuse of GTs may arise from an operator that is not a communications provider and who may not therefore be subject to our General Conditions.
- 3.64 We consider that the use of GTs in specific scenarios may not always constitute the provision of an electronic communications network or service and therefore persons using GTs might not always be considered a communications provider within the scope of General Condition B1. For example:
- a) In its most basic form, and as explained in Section 2, where lessee-only routing is used, GT leasing is simply a commercial agreement to allow a third party to use a GT. While we are not aware of this form of GT leasing currently occurring, with lessee-only routing, signalling traffic associated with a leased GT is not routed via the lessor's network and the lessor does not provide any other facility that is likely to make them a communications provider within the scope of General Condition B1.

⁸⁰ The terms Electronic Communications Network and Electronic Communications Services are also defined in our General Conditions.

- b) Where a range holder misuses their own GT (e.g. to carry out malicious signalling activities), there is a possibility that in certain scenarios they may not be considered to be providing any form of electronic communications service or otherwise fall within the definition of the communications provider within the scope of General Condition B1.
- c) An operator may have been a communications provider but then ceases to be a communications provider for whatever reason.

3.65 For these reasons, we do not consider our existing General Conditions are sufficient to address the risk of misuse of GTs by operators that may not be considered a communications provider. We have separate powers in section 59 of the Act that allow us to impose numbering rules on operators that are not communications providers but that have been allocated numbers, including through sub-allocation. We discuss in Section 4 why we consider it appropriate to impose new numbering rules under section 59 of the Act (which correspond to General Conditions we intend to rely on to address the harms we have identified).

3.66 In summary, while our existing General Conditions and the Good Practice Guide could be used to address aspects of the harms we have identified above (for example, the harm from creation of GTs by communications providers from numbers not allocated for use), they would not be effective in addressing all of the types of harms we have identified or enable us to achieve our objectives, including to significantly reduce the misuse of UK GTs.

The GSMA Global Title Leasing Code of Conduct

3.67 As discussed in Section 2, the GSMA has published the GSMA Code in response to concerns about unauthorised use of leased GTs.⁸¹ The GSMA Code strongly recommends that its members do not lease GTs and has asked members that continue to lease GTs to comply with its voluntary code of conduct designed to minimise the risk of harm.⁸²

3.68 The GSMA Code contains best practice guidance for lessors that are designed to minimise the risk of misuse of leased GTs. It includes the following requirements:

- Due diligence requirements that are intended to ensure that lessors undertake Know Your Customer checks on prospective lessees and their proposed use of GTs prior to contractual engagement and periodically thereafter.
- A requirement on lessees to route their traffic via the lessor's network, together with a requirement to retain signalling traffic, which is intended to ensure that lessors have full visibility of lessees' traffic and can investigate suspected signalling abuses.
- A requirement on lessors to apply real-time controls which are intended to limit lessees' use of signalling to their stated use case(s).
- A requirement to participate in threat intelligence activities which is intended to help improve visibility of signalling abuses.

3.69 If applied fully and comprehensively, these measures should reduce the likelihood of malicious signalling occurring and improve the visibility of lessees' signalling. This could therefore improve the security of GT leasing, particularly when compared with the

⁸¹ GSMA 2023, [FS.52 Global Title Leasing Code of Conduct](#)

⁸² The GSMA states that penetration testing may require leased GTs. It also excludes outbound roaming and network extensions from the scope of the GSMA Code even though leased GTs are sometimes used for this purpose.

arrangements that have been prevalent under which lessees often had unrestricted access to SS7 signalling and were not required to route their traffic via their lessor.

- 3.70 However, as a trade association, GSMA has no power to compel its members to comply with the GSMA Code. Consequently, there is a risk that, even if the GSMA Code were widely adhered to, a proportion of lessors may not implement it or implement only parts of it.
- 3.71 This concern appears to be borne out by the information we have gathered. Our understanding is that no GSMA member involved in GT leasing has yet publicly declared its compliance with the GSMA Code as a signatory. While seven GSMA members have declared themselves as ‘supporters’ of the GSMA Code, in so doing they have stated they do not lease GTs or otherwise facilitate GT leasing except as permitted by the GSMA Code.⁸³
- 3.72 Furthermore, as we discuss in more detail below, responses to our Lessor Information Request indicate that of the seven lessors that we asked about implementation of the GSMA Code, four had not implemented the GSMA Code at all, two said they had implemented parts of it and one was implementing it.
- 3.73 Moreover, the technical measures in the GSMA Code cannot completely prevent leased GTs from being misused, in particular because:
- Some signalling abuses utilise message types required for the stated legitimate use case and cannot easily be blocked by real-time technical controls that limit signalling to a particular use case.
 - Relatedly, it is necessary to deploy and maintain sophisticated proactive monitoring techniques to detect patterns of malicious signalling and take effective action in response to any instance of detected misuse.
- 3.74 In summary, the measures set out in the GSMA Code, if applied fully and comprehensively, would reduce the risk of signalling abuse occurring and improve the visibility of lessees’ signalling. However, given that no lessors have declared themselves as signatories to the GSMA Code in the two years since it was established, we cannot be confident that it will be fully adopted and complied with by GT lessors. Noting also that we do not have enforcement powers in relation to a GSMA Code, we have concluded that we cannot rely on it to address the different types of harms we have identified and meet our objectives, including to significantly reduce the misuse of UK GTs.

Control measures applied by Global Title lessors

- 3.75 We have assessed the responses to our Lessor Information Request in order to determine the extent to which lessors have implemented policies and processes for preventing, monitoring and detecting the misuse of leased GTs (including technical measures they apply to minimise the risk of unauthorised signalling) and whether they had implemented the GSMA Code. See Annex A5 for further details of our analysis of the responses we received.
- 3.76 In summary, we found that most lessors have some form of risk management policies, due-diligence measures and technical measures to reduce the risk of unauthorised signalling by

⁸³ GSMA, [GT Leasing Code of Conduct – Signatories and Supporters](#), accessed 28 February 2025.

their lessees. However, there were significant differences in the overall level of risk deterrence, particularly in relation to the level of scrutiny applied to due diligence checks on prospective lessees and ongoing monitoring of lessees' signalling.⁸⁴ To some extent, these differences are reflective of the overall scale of lessors' leasing businesses – lessors with few lessees tended to have fewer controls.

- 3.77 We further note that the four largest lessors (by volume of lessees) were all associated with malicious signalling in the Enea Report, including [redacted] which appears to have the most comprehensive due-diligence measures and technical controls. Moreover, [redacted].⁸⁵ This could therefore reflect the inherent difficulties for lessors to detect and address misuse of GTs by lessees.
- 3.78 We also asked lessors whether any of their leased GTs were sub-leased. Six lessors indicated that none of their GTs were sub-leased. One lessor [redacted] stated that some of its GTs were sub-leased because it had [redacted] that leases some of its GTs and that as a result, those GTs were now sub-leased by [redacted] to its customers. This lessor noted that its contract requires [redacted] to undertake due diligence measures and to route all traffic via the lessor's network for active policing and control.⁸⁶
- 3.79 Finally, none of the lessors had fully implemented the GSMA Code according to their responses to the Lessor Information Request.⁸⁷
- 3.80 As noted above, there were significant differences in the control measures applied by lessors and even those lessors with the most comprehensive controls are associated with malicious signalling traffic. Indeed, the clandestine nature of GT misuse means there are inherent limitations in the ability of lessors to implement, monitor and enforce effective controls to prevent misuse. We therefore consider that the measures implemented by lessors are not sufficient to address the different types of harms we have identified and meet our objectives, including to significantly reduce the misuse of UK GTs.

We consider that intervention is required to address the evidence of harm

- 3.81 For the reasons set out above, we consider that the Telecoms Security Act framework, GSMA Code and measures taken by lessors are not sufficient to address the different types of harms we have identified and to meet our objectives, including to significantly reduce the misuse of GTs.

⁸⁴ In particular, we note that the only lessor we identified as carrying out no due diligence checks before contracting to provide leased GTs or an initial risk assessment of potential lessees was a UK lessor, [redacted]; the only lessors we identified as carrying out no ongoing or periodic risk assessment of lessees were both UK lessors, [redacted] and [redacted]; and the only lessors we identified as having no processes to revoke or suspend leased GTs in connection with misuse were UK lessors, [redacted] and [redacted].

⁸⁵ [redacted].

⁸⁶ [redacted] response dated 13 February 2024 to the Lessor Information Request.

⁸⁷ Three lessors had not implemented any part of the GSMA Code and we note that two of those lessors are UK lessors, namely [redacted] and [redacted]. See, more widely, [redacted] responses dated 16 February 2024 and 3 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and 3 May 2024, [redacted] response dated 27 February 2024 and 2 May 2024, [redacted] response dated 13 February 2024 and 1 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

- 3.82 We consider that GT leasing leads to market failure because the GT lessor is unlikely to be the network / individual to suffer the potential harm arising from any malicious signalling initiated by its GT lessee and, in consequence, market forces do not provide the right incentives to protect citizens in the UK and internationally. Accordingly, there is no self-correcting mechanism arising through competition between mobile operators.
- 3.83 We consider that our existing General Conditions (in particular General Conditions B1.3, B1.6 and B1.8) are sufficient to address some of the harms we have identified, in particular in relation to misuse of GTs by range holders and the creation and misuse of GTs from numbers not allocated for use (supplemented by new guidance).
- 3.84 We consider however that our existing General Conditions are not sufficient to address the harms arising from misuse of GTs by third parties or misuse of GTs formed from numbers allocated to operators that may not be considered communications providers.
- 3.85 We therefore conclude that further intervention is required to address the harms we have identified. We set out our decisions on how to reduce the harms associated with GT leasing and misuse in Section 4.
- 3.86 In deciding to intervene, we recognise that malicious signalling originates from GTs around the world. This means that measures to combat these attacks in any single country will not alone completely address the harms associated with the misuse of GTs. However, as discussed above, we understand that GTs created from +44 number ranges are one of the most significant and consistent sources of malicious signalling worldwide. This could partially be explained by +44 GTs having generally been assumed to be relatively trustworthy by international operators (which means that signalling messages are less likely to be blocked). As such, we consider that our intervention in relation to UK GTs could contribute significantly to a reduction in harm for UK and international citizens, thereby leading to significant benefit to these consumers.
- 3.87 Taking proactive action to address the significant use of UK GTs for malicious signalling also puts Ofcom in a stronger position to take a leadership role in encouraging others to pursue similar interventions to prevent misuse of GTs in their jurisdictions. We note that if we were to take no action to tackle the harms arising from GT leasing and the broader misuse of UK GTs, we would be less well positioned to encourage action elsewhere.
- 3.88 We understand that other governments and regulators across the world are already considering whether actions are needed to prevent the misuse of GTs. For example, in March 2024 the US Federal Communications Commission sought comments on the implementation and effectiveness of security measures to prevent the use of the SS7 signalling protocol (including GT leasing) to track the location of consumers through their mobile devices.⁸⁸
- 3.89 Ofcom will continue to work with other regulators to inform and support other interventions to tackle misuse of GTs. This will include engaging with each of the telecoms regulatory authorities in the Crown Dependencies, to discuss how we can work together to prevent misuse of GTs created from +44 numbers allocated to operators in the Crown

⁸⁸ Federal Communications Commission March 2024, [Public Safety and Homeland Security Bureau Requests Comment on Implementation of Measures to Prevent Location Tracking via the Diameter and Signalling System 7 Security Protocols](#).

Dependencies. This should further contribute to a reduction in harm for UK and international citizens.

4. Our assessment and decisions

Summary of key decisions

- 4.1 In this section, we explain our decisions on a range of measures to tackle the misuse of GTs. This follows our July 2024 consultation, in which we proposed to strengthen our existing rules and introduce new rules, including a ban on GT leasing, designed to prevent malicious signalling.
- 4.2 Having carefully considered responses to our consultation, responses to statutory information requests, and following engagement with key stakeholders, we have decided:
- a) to ban leasing of GTs to third parties by operators that hold UK mobile numbers;
 - b) to ban third parties from creating or using Global Titles from sub-allocated numbers;
 - c) to publish new Guidance for number range holders on their responsibilities to prevent misuse of their GTs and to strengthen our rules to prohibit the misuse of GTs by any operator that holds UK mobile numbers; and
 - d) to strengthen our rules to prohibit the creation and use of GTs from numbers not allocated for use.

Introduction

- 4.3 As set out in Section 2, our objectives in determining our approach to GTs and our decisions for new regulations are to:
- significantly and effectively reduce the misuse of UK GTs and the associated harms to UK and international citizens;
 - improve the transparency and accountability of operators that use UK GTs; and
 - support the effective functioning of the UK telecommunications sector including by promoting network security and ensuring best and efficient use of telephone numbers.
- 4.4 Our analysis in Section 3 indicates that the misuse of GTs created from +44 numbers has resulted in actual and potential harm to UK and international citizens, and this will likely continue without any significant intervention.
- 4.5 This section is structured as follows:
- a) Firstly, we assess whether each of our consultation proposals is necessary to achieve our objectives, including any exemptions to the ban on GT leasing. We also set out our decisions on what measures we consider necessary to achieve our objectives (subject to our assessment of their impact).
 - b) Secondly, we assess the impact of those measures. We also set out our overall decisions on whether we consider it appropriate and proportionate to implement the measures we consider to be necessary to achieve our objectives.
 - c) Thirdly, we assess what is an appropriate implementation period for each of the measures we have decided to implement. We also set out our decisions on an appropriate implementation period to mitigate any adverse transitional impacts.
- 4.6 For each measure, we first summarise our consultation proposals and respondents' views as well as any other stakeholder engagement. We then set out our final decisions.

- 4.7 We set out the legal tests we need to satisfy and how we intend to enforce our decisions in Section 5.

Summary of our proposals

- 4.8 In our July 2024 consultation, we proposed to introduce these regulations to address the misuse of GTs by third parties:
- a) banning GT leasing to third parties; and
 - b) banning third parties from creating or using GTs from sub-allocated numbers.
- 4.9 We proposed to implement these bans by imposing rules on all operators, whether they were communications providers or not.⁸⁹
- 4.10 In addition to the ban on leasing, we also proposed to strengthen our current regulation to (a) address the misuse of GTs by number range holders; and (b) address the creation and misuse of GTs from numbers that are not allocated for use:
- a) Misuse of GTs by number range holders:
 - i) Issue Guidance on the types of steps range holders are expected to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
 - ii) Implement a new Numbering Condition Binding Non-Providers⁹⁰ (Non-Provider Condition) that ensures the current rules in the General Conditions relating to misuse of GTs by number range holders apply to all operators that hold UK mobile numbers.⁹¹
 - b) Creation and misuse of GTs from numbers not allocated for use:
 - i) Implement a new Non-Provider Condition that ensures the current rules in the General Condition relating to unauthorised access apply to all operators that hold UK mobile numbers.⁹²
- 4.11 We set out below a summary of responses to each proposal, followed by our assessment and decision.

Measures necessary to achieve our objectives

Measures to address misuse of GTs by third parties

- 4.12 In our July 2024 consultation, we proposed to ban GT leasing and, in parallel, to ban the creation or use of GTs from sub-allocated numbers. We proposed to implement these interventions by setting new restrictions in the Numbering Plan, amending GC B1, and setting new Non-Provider Conditions.⁹³

⁸⁹ We proposed to implement new Non-Provider Conditions that would ensure all operators (regardless of whether or not they may be considered a communications provider within the scope of General Condition B1) are in scope of the new regulation.

⁹⁰ These are conditions imposed under the Act on persons other than communications providers. We refer to these persons as operators that hold UK mobile numbers.

⁹¹ We proposed a new Non-Provider Condition corresponding to General Conditions B1.6 and B1.8.

⁹² We proposed a new Non-Provider Condition corresponding to General Condition B1.3.

⁹³ Section 5 of this statement explains our approach to the Non-Provider Conditions.

- 4.13 We explained our view that these two interventions together would enhance the transparency and accountability of operators that use GTs, and significantly reduce the potential for misuse. We proposed that the ban on GT leasing would be subject to two narrowly scoped exemptions, which are explained below.

Consultation responses

Responses to proposed ban on GT leasing

- 4.14 There was widespread support for our overarching objective to tackle misuse of GTs. There was unqualified support for the ban on GT leasing from two industry bodies: the Mobile Ecosystem Forum (MEF)⁹⁴ and the Federation of Communication Services (FCS)⁹⁵, as well as a number of other respondents.⁹⁶ The GSMA did not respond to our consultation.
- 4.15 Several respondents argued that a ban would enhance consumer protection and prevent the malicious activity linked to GT leasing. The MEF noted that the Enea Report clearly identified that GT leasing of UK numbers occurs more frequently than is recognised, reinforcing the need for action.
- 4.16 However, some lessor / lessee respondents, and some other industry respondents, did not support the ban. They argued that our objective could be achieved by measures other than a ban on GT leasing. They suggested a range of alternative approaches including:
- a) Taking action under the existing General Conditions, adopting the GSMA Code of Practice into regulation (i.e. to mandate compliance with and allow enforcement of the GSMA Code of Practice), or taking action under the existing Telecoms Security Act framework.⁹⁷
 - b) Introducing a new regulation and / or issuing guidance on GT leasing. This could include requiring GT lessors to register with Ofcom, making them responsible for the activity of their GTs and / or specifying the technical controls and outcomes required.⁹⁸ One respondent suggested tiered rules to reduce the impact of compliance on smaller operators.⁹⁹
 - c) Allowing one-level of GT leasing only (i.e. allow GT leasing but not sub-leasing) with Ofcom approving such arrangements and maintaining a register of lessees for inspection.¹⁰⁰
- 4.17 No respondent commented on our proposal to ban GT leasing by both communications providers subject to our General Conditions and any other operator that may hold UK mobile numbers (but who may not be considered a communications provider within the scope of our General Conditions).

⁹⁴ Mobile Ecosystem Forum response to July 2024 consultation, p. 3.

⁹⁵ Federation of Communication Services response to July 2024 consultation, p. 2.

⁹⁶ Tango Networks response to July 2024 consultation, p. 1; Bluewave Communications response to July 2024 consultation, p. 1; and P1 Security response to July 2024 consultation, p. 2.

⁹⁷ See Jersey Telecom response to July 2024 consultation, p.2; MVNO Europe response to July 2024 consultation, pp.2-3; Transatel response to July 2024 consultation, p.2; Jersey Airtel response to July 2024 consultation, p.1; BT Group response to July 2024 consultation, p.5; Velos IoT response to July 2024 consultation, p.2; and Sure Telecom response to July 2024 consultation, p.20.

⁹⁸ See Sure Telecom response to July 2024 consultation, p. 20.

⁹⁹ Jersey Airtel response to July 2024 consultation, p.2.

¹⁰⁰ Vodafone response to July 2024 consultation, p. 2; and Virgin Media O2 response to July 2024 consultation p. 3.

Responses to proposed ban on creation or use of GTs from sub-allocated numbers

- 4.18 There was strong support for the proposal to ban the creation or use of GTs from sub-allocated numbers by third parties. Some respondents recognised the risk associated with this practice given the lack of direct relationship with the owner of the numbering range. The MEF¹⁰¹ highlighted that stakeholders with a genuine need to create GTs could instead apply directly to Ofcom for the allocation of a number range.
- 4.19 Jersey Airtel¹⁰² argued, however, that banning the creation of GTs from sub-allocated numbers by third parties would limit flexibility, especially for smaller operators. Jersey Airtel proposed a reporting or monitoring framework instead of a ban on creating GTs from sub-allocated numbers.
- 4.20 Bluewave Communications¹⁰³ suggested that we allow exceptions to edge cases that are individually approved, e.g. innovation, testing of new technologies.
- 4.21 No respondent commented on our proposal to ban the creation and use of GTs from sub-allocated numbers by both communications providers subject to our General Conditions and any other operator that may hold UK mobile numbers (but who may not be considered a communications provider within the scope of our General Conditions).

Our assessment

Ban on GT leasing

- 4.22 We note the strong support for our objectives in determining our approach to GTs and some industry support for a ban on GT leasing. However, some respondents advocated measures other than a ban.
- 4.23 Some respondents suggested that instead of a ban on GT leasing, we should take action under the existing General Conditions. Some respondents suggested that we should introduce new regulation on GT leasing (for example, we should issue a new Guide on GT leasing, or adopt the current GSMA Code of Conduct into regulation).
- 4.24 In our consultation, we considered whether we could rely on the existing General Conditions in B1.6 and B1.8 that apply to the allocation, adoption and use of numbers and supplement this with a new Guide on GT leasing as a potential alternative to a ban on GT leasing.
- 4.25 We envisaged that a new Guide on GT leasing for lessors could set out the following requirements:
- due diligence checks by lessors on potential lessees before leasing GTs;
 - lessors to take steps such as periodic risk reviews of lessees to ensure continued compliance;
 - lessors to respond to incidents of misuse of GTs by lessees;
 - lessors to provide clear information to other networks on leased GTs and lessees; and

¹⁰¹ Mobile Ecosystem Forum response to July 2024 consultation, p. 3.

¹⁰² Jersey Airtel response to July 2024 consultation, p. 1.

¹⁰³ Bluewave Communications response to July 2024 consultation, p. 1.

- prohibiting the sub-leasing of GTs by lessees.

4.26 However, we explained our view that this approach, compared to a ban on leasing, would not be effective in significantly reducing the risk and degree of harm.¹⁰⁴ This was for the following reasons:

- a) We had identified evidence of harm despite lessors implementing controls to prevent misuse of GTs.
- b) Our Lessor Information Request indicated that each of the lessors have some controls in place to monitor, detect and prevent the misuse of their GTs by lessees. These controls include KYC / due diligence checks, contractual controls on lessees and technical measures relating to the routing of signalling. However, despite the apparent prevalence of both KYC and technical controls, our evidence suggests +44 GTs continue to be a significant source of malicious signalling. Indeed, the lessor ([redacted]) we consider has the most comprehensive due diligence measures and technical controls was still associated with malicious signalling in the Enea Report.
- c) Even where lessors have robust contractual and technical controls in place, there are inherent challenges for lessors to monitor traffic from a leased GT and take action when misuse is detected. In addition, it may not be possible for the lessors to detect instances of sub-leasing, as indicated by a response¹⁰⁵ to our Lessor Information Request. This suggests that there is still a significant risk that bad actors could get access to UK GTs and use them for malicious signalling, even if we introduced a Guide on GT leasing.
- d) There were practical challenges to monitoring the effectiveness of a Guide on GT leasing.
- e) There would be significant practical and timing challenges associated with monitoring whether GTs have been misused and whether lessors are implementing the practices we might include in a Guide on GT Leasing. The potential targets for signalling attacks include networks (and their subscribers) across the world and we would have limited direct access to intelligence outside the UK regarding specific instances of malicious signalling relating to a specific entity, particularly in the immediate period following such abuses. This could hinder or significantly delay any enforcement action we might take against a lessor for GT misuse. We would need to establish that the misuse of their GTs has arisen and that this was because of the lessor's failure to ensure that it has taken reasonably practicable steps to ensure its lessees do not misuse the GTs, including carrying out the relevant measures in such a guide.

4.27 Respondents who suggested we rely on the existing General Conditions and issue a new Guide on GT leasing, or adopt the GSMA Code of Conduct into regulation, did not provide any new evidence to support these alternative approaches that we had not previously considered. Our July 2024 consultation had already explained why we did not consider that these possible alternatives to a ban on GT leasing would be effective.

4.28 In particular, we remain of the view that requiring compliance with a new Guide on GT leasing that sets out technical and contractual controls on leasing similar to those found in

¹⁰⁴ See, in particular, paragraphs 3.44 – 3.50 and 4.14 – 4.20 of our July 2024 consultation.

¹⁰⁵ [redacted] indicated that they believe it is not possible to directly detect instances of sub-leasing.

the GSMA's GT Leasing Code of Conduct raises an inherent risk of loopholes that bad actors could exploit. We would also face significant practical and timing challenges associated with monitoring whether GTs have been misused and whether lessors are implementing the practices we might include in guidance, as well as associated enforcement challenges.

- 4.29 Some respondents suggested that instead of a ban on GT leasing, we should take action under the existing Telecoms Security Act framework. However, we explained in our consultation that the TSA framework is not well-suited to addressing the concerns we have about GT leasing. While providers are likely to be required to take at least some measures to address security risks arising from GT leasing to meet their security duties under the TSA framework, the framework does not sufficiently address the different types of harms we have identified.
- 4.30 In particular, the TSA framework lacks specific measures to address the risk of those harms and the Telecoms Security Code does not apply to smaller operators that lease GTs. Respondents who suggested we could take action under the Telecoms Security Act framework (instead of pursuing a GT leasing ban) did not address the reasoning we presented in our consultation¹⁰⁶ or provide any new approaches we had not previously considered. As a result, we remain of the view that a more comprehensive approach that applies to providers of all sizes is required to address fully the harms and misuse that we have identified.
- 4.31 Jersey Airtel said that we should consider tiered requirements (i.e. lesser requirements) for smaller operators, as it said that smaller operators may struggle to meet the costs and source the technical expertise to comply. Jersey Airtel further suggested we could rely on strict adherence to the GSMA Code of Practice and monitoring. However, we do not believe that relying on the GSMA Code of Practice and monitoring would be effective, and having different approaches for smaller providers would create a loophole, which could be exploited by bad actors. As explained above, we consider that a comprehensive approach that applies to providers of all sizes is required.
- 4.32 In response to the suggestion that we should allow one-level of GT leasing only with approval by Ofcom, this appears to be a suggestion to ban sub-leasing but not to ban GT leasing, and to require Ofcom to approve lessees.
- 4.33 Our evidence on misuse of GTs related to lessees, not sub-lessees, so we do not consider that a ban on sub-leasing of GTs would be sufficient. It would also likely be hard to enforce, because it would be difficult to obtain up-to-date information about all the sub-leasing relationships that lessees might enter into.
- 4.34 Our view is that a ban on leasing of GTs is necessary to address the harms from GT leasing and misuse that we have identified. Further, we do not consider that such an approach, where Ofcom directly approves leasing arrangements on a case-by-case basis and maintains a register available for inspection, would be practical or an efficient use of our resources. We consider that our objective to improve transparency and accountability would be best achieved by ensuring that only number range holders can create GTs.
- 4.35 We do not agree with [X] that [X]. We also do not agree that where signalling is routed via the lessor, that this form of leasing should be exempt from the ban on GT leasing, as 3G

¹⁰⁶ See, in particular, paragraphs 3.35 – 3.39 of our July 2024 consultation.

Telecommunications Limited and Wireless Logic suggested.¹⁰⁷ As explained above, we consider that a ban on GT leasing is the only way to meet our objectives. Routing via the lessor would still allow GT leasing to take place and would rely on technical controls and monitoring by the lessor, which we have explained we do not consider to be an effective alternative approach.

- 4.36 Overall, we remain of the view that a ban on GT leasing, rather than any other alternative approach, together with additional measures to tackle GT misuse by third parties, are necessary in order to address the harms from GT leasing and enable us to achieve our objective to significantly and effectively reduce the misuse of GTs. We respond to comments from respondents about the impact of a ban on GT leasing on their businesses in our updated impact assessment below.

Ban on creating or using GTs from sub-allocated numbers

- 4.37 Taking into account respondents' strong support for this measure, we remain of the view that a ban on third parties creating or using Global Titles from sub-allocated numbers is necessary to address the risk of GTs being created from sub-allocated numbers and these GTs then being misused.
- 4.38 This ban is designed to further reduce the risk of misuse of GTs by third parties. It complements our decision to proceed with the ban on GT leasing, explained above, by preventing bad actors that have previously used leased GTs from creating GTs from any sub-allocated numbers that they hold (or might seek).
- 4.39 We appreciate that banning the creation of GTs from sub-allocated numbers could limit the flexibility of any operators who might have considered adopting this approach. However, we have decided this measure is necessary given the serious risk of harm arising from the misuse of GTs, and the increased risk posed by this potential arrangement given the lack of direct regulatory relationship between Ofcom and the holders of sub-allocated numbers.
- 4.40 We do not believe that a reporting or monitoring regime would be an acceptable alternative approach, as this would still allow sub-allocatees to create new GTs or use existing GTs they may have previously created, which could compromise the overall effectiveness of the ban on the leasing of GTs and not allow us to achieve our objectives. Further, in our view, establishing and maintaining such a regime would not be an efficient use of our resources.
- 4.41 We recognise that the wording, which we proposed to insert as a new Restriction 3.8.1 in the Numbering Plan, banned the creation of GTs from sub-allocated numbers but did not explicitly refer to the use of those GTs created from sub-allocated numbers. We consider it was nonetheless clear from our consultation that our intention was to ban both the creation of GTs from sub-allocated numbers as well as their subsequent use (including misuse).¹⁰⁸ Our consultation also made clear that only number range holders should create and use GTs and that any operator wishing to use GTs should apply to Ofcom directly for the allocation of their own number ranges.¹⁰⁹ We consider it necessary to also ban the use

¹⁰⁷ [redacted] response to July 2024 consultation, [redacted]; 3G Telecommunications Limited response to July 2024 consultation, p. 3; Wireless Logic response to July 2024 consultation, p. 2.

¹⁰⁸ See, for example, paragraphs 4.12 and 4.80 of our July 2024 consultation.

¹⁰⁹ See, for example, paragraphs 4.13, 4.75, 4.80, 4.81 and 5.30 of our July 2024 consultation.

of GTs that have been created from sub-allocated numbers to reflect our policy intention and close a potential loophole that bad actors may otherwise exploit to misuse GTs.

- 4.42 In future, any operator(s) wishing to create and use new GTs in order to support their provision of mobile services will have to apply to Ofcom directly for their own number ranges. This could be an option for potential future use cases as mentioned in the response from Bluewave Communications, such as testing of new technologies or other innovative services. We will, as part of the application process, scrutinise such applications, thereby further reducing the risk of misuse.

Our decision

- 4.43 For the reasons set out above, we have decided that only a ban on GT leasing and a ban on the creation or use of GTs from sub-allocated numbers will enable us to significantly and effectively reduce the misuse of UK GTs and enable us to achieve our objectives.
- 4.44 We consider it necessary to close any potential loophole by ensuring these bans apply to both communications providers subject to our General Conditions and any other operator that may hold UK mobile numbers (but who may not be considered a communications provider within the scope of our General Conditions). This means we also consider it necessary to introduce a new Non-Provider Condition that implements these bans.
- 4.45 In the sub-section below titled 'Impact of measures to address GT misuse', we assess the impact of these bans and set out our overall decisions on whether we consider it appropriate and proportionate to implement these bans to achieve our objectives. We discuss the practical implementation of these bans in Section 5.

Proposed exemptions from the ban on GT leasing

- 4.46 In the paragraphs below, we discuss whether any exemptions from the ban on GT leasing are necessary and whether they would still enable us to achieve our objectives. We first summarise our consultation proposals relating to our proposed exemptions, respondents' views on these and other possible exemptions and then set out our assessment and decision.
- 4.47 In our July 2024 consultation, we recognised that the GSMA excludes certain services and use cases from the requirements of the GSMA Code of Conduct on GT leasing. However, we explained that we did not intend to incorporate similar exemptions to the GSMA into our proposed ban on GT leasing. This was because we considered that exemptions were likely to be difficult to monitor and may create a risk that bad actors are able to access GTs for uses beyond the stated exemptions. We also noted that the GSMA has stated that there generally are alternatives to GT leasing, and it has urged its members against leasing.
- 4.48 We recognised, however, that mobile operators sometimes make their GTs available to companies within the same corporate group (e.g. where a service is provided within a corporate group) and to suppliers (e.g. where a supplier hosts the core network elements used to provide a service to the mobile operator's customers). We considered such use of GTs may be a necessary part of facilitating legitimate services and said it was unlikely to give rise to a risk of harm.
- 4.49 We therefore proposed these two limited exemptions to the ban on GT leasing for intra-group and supplier use cases. These two exemptions would allow a number range holder to authorise the use of a number for use as a GT to: (i) a person in the same group (the

‘intra-group’ exemption); and (ii) a person supplying services to the person authorising the use (the ‘supplier’ exemption).¹¹⁰

Consultation responses

Exemptions to our ban on GT leasing relating to intra-group and supplier use

- 4.50 There was broad support for the two exemptions to the ban on GT leasing which we proposed for intra-group and supplier use cases.¹¹¹ Respondents generally recognised that the risk of harm was low in these two situations. For example, Virgin Media O2 said: “*We believe ensuring these exemptions are in place is the correct approach and should allow providers to continue much of their existing processes.*”¹¹²
- 4.51 Vodafone said that where companies in a group are sold, the company concerned should use its own GTs from that point, but it argued that a transition period may be required and, in some cases, it may not be practical.¹¹³
- 4.52 Jersey Telecom said the supplier exemption should be extended to include MVNOs allocated GTs by an MNO, where those GTs are hosted on the MNO’s core network, for approved and controlled use cases.¹¹⁴

Additional exemptions

- 4.53 The MEF said that, when considering the case for additional exemptions, it should be recognised that these exemptions “*will almost certainly become the focus of abuse by bad actors.*”¹¹⁵
- 4.54 Some respondents said that additional use cases should be exempt from the ban on GT leasing. In some cases, these respondents were lessors / lessees suggesting this for their specific use case. Arguments were made for the following use cases to be exempted:
- a) MVNO / MVNA / MVNE use cases:
- > BT Group suggested we should exempt the MVNO use case. BT Group argued that removing access to GT leasing would negatively affect the MVNO end user experience and lead to costs associated with implementing technical solutions.¹¹⁶
 - > Transatel and MVNO Europe suggested that the provision of GTs by MNOs to MVNXs (which include MVNAs and MVNEs) should not be regarded as a GT lease as it is part of the wholesale service provided by MNOs and MVNXs.¹¹⁷
 - > Jersey Airtel said we should consider an exemption for the MVNO use case where there are proven security measures.¹¹⁸

¹¹⁰ See paragraphs 4.26-4.30 of our July 2024 consultation document.

¹¹¹ See Bluewave Communications response to the July 2024 consultation, p. 1; Manx Telecom response to July 2024 consultation, p. 2; Jersey Telecom response to July 2024 consultation, p. 2; Wireless Logic response to July 2024 consultation, p. 2; Federation of Communications Services response to July 2024 consultation, p. 2; Mobile Ecosystem Forum response to July 2024 consultation p. 3; Tango Networks response to July 2024 consultation, p. 1; Virgin Media O2 response to July 2024 consultation, p. 3.

¹¹² Virgin Media O2 response to July 2024 consultation, p.3.

¹¹³ Vodafone response to July 2024 consultation, p.3.

¹¹⁴ Jersey Telecom response to the July 2024 consultation, p. 2.

¹¹⁵ Mobile Ecosystem Forum response to the July 2024 consultation, p. 3.

¹¹⁶ BT Group response to the July 2024 consultation, paragraphs 3.1 to 3.4.

¹¹⁷ MVNO Europe response to the July 2024 consultation, p. 2; Transatel response to the July 2024 consultation, p. 2.

¹¹⁸ Jersey Airtel response to the July 2024 consultation, p. 1.

b) IoT use case:

- > Cubic Telecom explained it uses leased GTs to support various in-vehicle services.¹¹⁹ It argued that, for voice purposes, the leased GTs are used to provide a signal to the visited network and this is restricted to using the lessor's IMSI for voice. It said this significantly reduces the risk of malicious activity.¹²⁰
- > Velos IoT proposed that B2B IoT / M2M-only connectivity providers should be exempt. It argued that its customers have use cases where SS7 signalling would not directly impact consumers, and that the IoT use case should be allowed to use 2G and 3G networks until they are switched off. Velos IoT said an exemption would remove the need to reroute traffic to already strained 4G and 5G networks and avoid additional costs for IoT providers.¹²¹

c) Penetration testing and A2P SMS:

- > Jersey Airtel said we should consider an exemption for penetration testing and A2P services with proven security measures.¹²²
- > Sure Guernsey considered that direct connectivity to a test network was not a satisfactory alternative to GT leasing for penetration testing.¹²³ Sure argued that (i) not all operators have test environments that could be used for penetration testing and these test networks are expensive to develop / resource-intensive to maintain; and (ii) operators typically require penetration testing to be done on both test and live networks as this provides additional assurance and test networks may not be able to fully replicate real world issues.
- > [X] said that [X].¹²⁴
- > In contrast, P1 Security (a penetration tester) welcomed our proposal to ban GT leasing and did not support an exemption to the ban on GT leasing for penetration testing. P1 Security also explained its view that penetration testing should include testing over SS7 networks as that is how bad actors launch their attacks. It said it had obtained a mobile network code (MNC) and GTs from the French regulator ARCEP to facilitate this. It encouraged Ofcom to adopt a similar approach and to allow it and other penetration testers to obtain UK MNCs and mobile numbers / GTs.¹²⁵

Our assessment

Exemption to our ban on GT leasing relating to intra-group and supplier use

- 4.55 We note the strong support from respondents on our two proposed limited exemptions (intra-group and supplier use). We remain of the view that the use of GTs for intra-group and supplier use is likely to be necessary to facilitate legitimate services and that these use cases are unlikely to give rise to a risk of harm.
- 4.56 In response to Vodafone's point regarding GT usage following changes in company ownership, we do not consider it necessary or appropriate for the new owner to benefit from any exemption from the ban on leasing which the previous owner may have

¹¹⁹ These include GSM Location Update, GPRS Update Location, CS Speech MT and SMS MO.

¹²⁰ Cubic Telecom response to the July 2024 consultation, p. 5.

¹²¹ Velos IoT response to the July 2024 consultation, pp. 3 and 4.

¹²² Jersey Airtel response to the July 2024 consultation, p. 1.

¹²³ Sure Telecom response to the July 2024 consultation, pp. 10 and 11.

¹²⁴ [X] response to the July 2024 consultation, [X].

¹²⁵ P1 Security response to the July 2024 consultation, pp. 3 and 4.

benefitted from. In particular, we do not think it would be necessary or appropriate to either (i) allow a transitional period for all changes in company ownership (regardless of whether it is necessary in a particular case) or (ii) assess whether a transitional period may be necessary on a case-by-case basis. We consider that any exemptions should be limited to scenarios where they are likely to be required. Introducing a transitional period in the case of a change in company ownership would also add a layer of complexity to the exemptions that could be exploited.

- 4.57 We would expect the implications of a change in ownership to be addressed by the new prospective owners as part of their merger / takeover processes, alongside other regulatory considerations. We also note that in some circumstances the new owner might consider allowing the relevant company to use its own existing number ranges, applying for new number ranges directly from us, or asking us to transfer ownership of existing numbers to it as the new holder of the relevant numbers.
- 4.58 We remain of the view that, in order to minimise the risk that the exemption for suppliers might be used to circumvent the ban on GT leasing, the exemption should be limited to the provision of services to the operator that is authorising the use of their GT. This means that use by the supplier for any other purpose would fall outside the scope of the exemption.
- 4.59 In response to Jersey Telecom, we do not consider that the scope of the supplier exemption should be expanded to include an arrangement where the lessor's GT is being used as a network address for a thick MVNO's core network equipment and its signalling traffic is routed via the lessor. This appears to be an example of GT leasing with signalling via the lessor with technical controls; as explained above, we do not consider this arrangement to be effective and it would risk creating a loophole which bad actors could exploit.

Consideration of additional exemptions

- 4.60 As explained in our July 2024 consultation, our starting point is that there is a risk that additional exemptions that allow third parties to access GTs and send signalling to other networks (i.e. not the owner of the GT) could provide a loophole for bad actors to exploit and continue to engage in malicious signalling. We assess the arguments made by respondents for additional exemptions below, and in particular whether we consider leasing GTs to be necessary for the provision of the relevant use cases.

MVNO / MVNA / MVNE use cases

- 4.61 We note the MNVO use case is a broad category which can be used to refer to MVNOs with a range of different business models, including MVNEs and MVNAs. It can also cover some IoT use cases.
- 4.62 In response to Transatel and MVNO Europe, we consider that the MVNE and MVNA use cases identified are generally likely to both involve the leasing of GTs. However, our supplier exemption means that number range holders are not prevented from leasing their GTs to an MVNE solely for that MVNE to provide a service to that range holder (including a service that supports the provision of MVNO services by that range holder). In contrast, MVNAs that use the GTs of a range holder (e.g. an MNO) to provide MVNO services to third-party MVNOs on their own account would not be within the scope of the supplier exemption.

- 4.63 We have considered the points made by respondents who sought an exemption for the MVNO / MVNA / MVNE use cases. We have also engaged with relevant stakeholders following our consultation to understand their business models and the impact our ban would have on their activity and end users. As explained in our consultation, the vast majority of MVNOs in the UK market are not reliant on leased GTs.¹²⁶ For those that currently rely on GT leasing, an alternative arrangement is to move to a hosted service provided by the host MNO (often referred to as a thin MVNO service). Taking this into account, and drawing on stakeholder engagement and responses to information requests, we have concluded that exempting MVNO / MVNA / MVNE use cases from the ban on GT leasing is not necessary. We consider that the ban on GT leasing will likely have a limited impact on affected stakeholders. We explain the reasons supporting this conclusion in our updated impact assessment below.
- 4.64 Overall, we do not consider an exemption for the MVNO / MVNA / MVNE use case is necessary or appropriate, especially when weighed against the risks of creating a significant exemption to the ban on GT leasing covering a broad range of potential lessees, which could be exploited by bad actors.

IoT use case

- 4.65 We have considered the points made by respondents in relation to the IoT use case and consider there are alternative arrangements available to GT leasing, so this exemption is not necessary.
- 4.66 In response to Cubic Telecom's point about the use of GTs to support various in-vehicle services, we have established that alternative arrangements are available to provide these services that do not require GT leasing. These alternative arrangements include lessees acquiring their own GTs or using GT modification services offered by operators that are number range holders.¹²⁷
- 4.67 We also consider that granting additional exemptions would not allow us to achieve our objective to significantly and effectively reduce the misuse of GTs.
- 4.68 Overall, based on consultation responses, our engagement with key lessors and lessees (including responses to subsequent information requests), and taking into account the risks associated with permitting this form of GT leasing, we do not consider it necessary or appropriate to exempt IoT services from the ban on GT leasing.

Penetration testing and A2P SMS

- 4.69 We have considered the points made by respondents in relation to the penetration testing and A2P SMS use cases. We note, however, that we are not aware of any UK lessor leasing GTs for these two use cases.
- 4.70 As explained in our consultation, penetration testing can be carried out via direct connectivity as an alternative to GT leasing. Penetration testing via direct connectivity can be performed both on a target operator's live and test networks and does not rely on GT leasing. Testing on live networks can provide more assurance to operators on common threats, while testing on test networks can provide additional flexibility / options to

¹²⁶ Ofcom, July 2024. [Global Titles on Mobile Network Security, proposals to address misuse of Global Titles](#). p 49.

¹²⁷ GT modification is a technique used to enable various services, whereby signalling messages to and from a GT are readdressed, allowing a third party to use the GT indirectly.

conduct more complex and riskier tests (i.e. those that may be too risky to conduct on the live network given their potential impact on the smooth running of the wider network).

- 4.71 While we recognise that direct connectivity can be potentially more complex for operators to set up, we are not aware of any current providers of penetration services having relied on the leasing of UK GTs to provide such services. Furthermore, we consider that creating an exemption to facilitate the hypothetical provision of such services via a leasing arrangement needs to be weighed against the risk of creating a loophole that could be exploited by bad actors. For all the reasons set out above, we do not consider it necessary or appropriate to exempt penetration testing from the ban on GT leasing.
- 4.72 We are aware of potential interest, including from P1 Security, on the usage of the tester's own GTs for penetration testing of live networks. More specifically, the tester could establish connectivity via the signalling carrier like a roaming partner to the client operator and then use its own GT as the originating address. If we were to receive a request for the allocation of mobile numbers for the purpose of creating GTs for penetration testing, we would need to consider whether the application met our eligibility criteria for the allocation of mobile numbers for use as part of a mobile service.
- 4.73 In relation to A2P SMS, we remain of the view that using an Application Programming Interface (API), or Short Message Peer-to-Peer Protocol (SMPP) are potential alternatives to GT leasing for this use case. We note comments from Sure that API / SMPP alternatives present challenges for high volume GT lessees. However, there are various relevant factors which suggest that a ban on leasing would not significantly impact this use case:
- a) the GSMA has established an API working group focused on developing security best practice guidelines to underpin alternative solutions to be developed by operators;
 - b) alternative arrangements are feasible and, more generally, most providers of A2P SMS services in the market do not rely on the leasing of GTs in order to offer these services to end user customers,
 - c) at least one stakeholder ([X]) has migrated their lessees from GT-based services to one that relies on API / SMPP.

Requests for clarification

- 4.74 Two respondents requested clarification on whether a practice or solution would be affected by the proposed ban on GT leasing. We set out our response below.

GT modification

- 4.75 Manx Telecom sought confirmation that GT modification would be an acceptable alternative to GT leasing. GT modification is a readdressing technique used to enable various services, whereby signalling messages originated by a third party are retransmitted by the range holder after modification of the origination address to replace the third party's GT with the range holder's GT. Similarly, signalling messages destined for the third party are sent to the range holder's GT and modified by the range holder prior to retransmission to make the third party's GT the destination address.
- 4.76 In the July 2024 consultation, we referred to GT modification as one potential alternative arrangement to GT leasing that might be used to support the provision of outbound roaming services.¹²⁸

¹²⁸ See Table 4.1 and paragraph 4.69 of our July 2024 consultation.

- 4.77 GT modification solutions fall outside of the scope of the ban on GT leasing because they do not involve the provision of a GT to a third party for its use. It is possible that some lessees that currently use leased GTs to provide legitimate mobile services, may in future look to use GT modification solutions provided by number range holders. However, we note there are likely to be alternative options in most cases which involve a lower risk of misuse, so we would encourage lessees and lessors to explore the feasibility of approaches that do not involve GT modification.
- 4.78 More generally, we wish to make clear to number range holders who provide – or are considering providing – services facilitated by GT modification that we consider that these arrangements have a greater potential to lead to malicious signalling than alternative arrangements such as APIs. This is because the third parties using GT modification have the ability to direct the sending and receiving of SS7 signalling messages from the range holder’s GT. Range holders that choose to offer GT modification arrangements will need to ensure that the checks and controls they apply to such services and their customers are sufficient to mitigate these risks.
- 4.79 The Guidance for number range holders to prevent misuse of GTs, published alongside this statement, will apply to services facilitated by GT modification because they use GTs as inputs and the Guidance specifically highlights the risks associated with GT modification. This Guidance is discussed further in paragraphs 4.85-4.106 below.

National roaming solution

- 4.80 BT Group sought confirmation that the ban on GT leasing would not prohibit national roaming solutions for IoT applications facilitated by non-UK mobile numbers and leased non-UK GTs.
- 4.81 Ofcom’s ban on GT leasing applies to UK GTs (i.e. GTs created from UK numbers allocated by Ofcom) and will not therefore prohibit UK operators from leasing non-UK GTs to facilitate the provision of national roaming services. It is the responsibility of operators to ensure they comply with the relevant rules applicable to use non-UK GTs in other jurisdictions. We explain in Section 2 the steps regulators in the Crown Dependencies are proposing to take in relation to the use of +44 GTs by operators in the Crown Dependencies.

Our decision

- 4.82 Our starting point is that exemptions are likely to be difficult to monitor and may create a risk that bad actors are able to access GTs for uses beyond the stated exemptions. Nevertheless, we have considered whether GT leasing is necessary to facilitate other legitimate services meaning that a further exemption would be appropriate.
- 4.83 As explained above, alternative solutions to GT leasing are available for each use case and granting additional exemptions (beyond those which we initially proposed) raises a real risk of bad actors being able to take advantage of further exemptions for nefarious activities, undermining the ban on GT leasing. As a result, we do not consider that it is necessary or appropriate to grant additional exemptions. Doing so would undermine our ability to significantly and effectively reduce the misuse of GTs and achieve our objectives.
- 4.84 We also note that two exemptions (for A2P SMS and penetration testing) were proposed in relation to use cases currently only associated with GT leasing by CD operators. As explained above, our ban will not directly impact CD operators and hence those use cases. We have therefore decided to maintain our consultation position and proceed with two

limited exemptions to the ban on GT leasing for the intra-group and supplier use cases only. We discuss the practical implementation of these exemptions in Section 5.

Addressing misuse of Global Titles by number range holders

Background and our proposal

- 4.85 In our July 2024 consultation, we presented evidence of harm arising from GTs created from numbers allocated to communications providers (including UK range holders) who did not tell us that they were lessors in their responses to the January 2023 Information Request. This could indicate that the source of the malicious signalling was the number range holder itself, or it could suggest that it arose through the number range holder's provision of a service to a customer which involves making use of the signalling capabilities of the GT.¹²⁹
- 4.86 We considered that malicious signalling may have arisen because the number range holder had taken insufficient steps to prevent the misuse, such as technical controls, Know Your Customer (KYC) checks and checks on the intended use of the service.
- 4.87 Consequently, we considered that, in order for General Conditions B1.6 and B1.8 to be effective and for number range holders to comply with these obligations in relation to GTs, it would be appropriate to issue new Guidance.
- 4.88 We proposed to issue new Guidance to prevent misuse of GTs by number range holders. This Guidance would include appropriate steps we would expect number range holders to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.¹³⁰
- 4.89 To help number range holders prevent the illegitimate use of GTs, we proposed different processes that could be put in place depending on the circumstances and the nature of the risk involved. This would ensure continued compliance with General Conditions B1.6 and B1.8.
- 4.90 We also proposed to introduce a new Non-Provider Condition 2.4 corresponding to General Conditions B1.6 and B1.8. This is to ensure the rules in our General Conditions relating to misuse of GTs by communications providers apply to all operators who might have access to GTs through their number allocations (regardless of whether or not they may be considered a communications provider within the scope of General Condition B1).¹³¹

¹²⁹ There may be an increased risk of range holder misuse of GTs after we implement a ban on GT leasing (alongside a ban on GTs being created and used from sub-allocated numbers) as bad actors may seek to circumvent that ban by requesting their own UK mobile numbers and assigning their own GTs for the purposes of malicious signalling or by offering services providing alternative means of accessing SS7 signalling. We would however, as part of the application process, scrutinise the applications, thereby further reducing the risk of misuse.

¹³⁰ See Ofcom's July 2024 consultation, paragraphs 4.38-4.45.

¹³¹ We explain the basis for this proposal in more detail in Sections 3 and 5 of this document.

Consultation responses

- 4.91 BT Group, Virgin Media O2, Cubic Telecom, Bluewave Communication Ltd, Manx Telecom, the MEF, the FCS, XConnect, and P1 Security¹³² supported our proposal to provide new Guidance on the types of steps number range holders should be expected to take when providing a service to a customer that has the potential to generate malicious signalling.
- 4.92 Jersey Telecom agreed with our proposals and argued that any rules and Guidance should be proportionate to the risk posed.¹³³ MVNO Europe and Jersey Airtel said that we should be cautious so as not to unduly raise costs or introduce technical complexities.¹³⁴
- 4.93 Some respondents also supported our proposal to strengthen the rules to prohibit the misuse of GTs by any operator that holds UK mobile numbers by introducing a new Non-Provider Condition 2.4 corresponding to General Conditions B1.6 and B1.8.¹³⁵

Our assessment

- 4.94 We note the broad support for our proposal to issue new Guidance for number range holders to prevent misuse of GTs and for our proposals to strengthen the rules to prohibit the misuse of GTs by any operator that holds UK mobile numbers.
- 4.95 We remain of the view that introducing new Guidance is necessary to explicitly address the risk of GT misuse by range holders. As discussed in our July 2024 consultation, the Guidance draws on relevant aspects of the Good Practice Guide - such as requiring number range holders to take reasonable steps to KYC and consider putting appropriate controls in place - but applies them in the context of operators holding UK mobile numbers providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
- 4.96 We have decided to create a separate standalone Guidance document to provide a clear reference point for range holders regarding their responsibilities going forward. The Guidance therefore contains additional information on its purpose and scope as well as the relevant regulatory framework.
- 4.97 The Guidance explains that it does not create new obligations but is intended to help providers ensure that they comply with their existing obligations under GCs B1.6 and B1.8 and Non-Provider Condition 2.4.
- 4.98 It also identifies the type of services and customers that are within its scope. Services that fall within the scope of the Guidance include services provided by number range holders that rely on a GT which directly relates to signalling purposes. The customers in scope of the Guidance include other communications providers, businesses or other persons who

¹³² BT Group response to the July 2024 consultation, p.9; Virgin Media O2 response to the July 2024 consultation, p.3; Cubic Telecom response to the July 2024 consultation, p.5; Bluewave Communication Ltd response to the July 2024 consultation, p.1; Manx Telecom response to the July 2024 consultation, p.2; Mobile Ecosystem Forum response to the July 2024 consultation, p.3; Federation of Communication Services response to the July 2024 consultation, p.2; XConnect response to the July 2024 consultation, p.4; P1 Security response to the July 2024 consultation, p.5.

¹³³ Jersey Telecom response to the July 2024 consultation, p. 3.

¹³⁴ MVNO Europe response to the July 2024 consultation p. 3; Jersey Airtel response to the July 2024 consultation, p. 2.

¹³⁵ Jersey Telecom response to the July 2024 consultation, p. 3; Federation of Communication Services response to the July 2024 consultation, p.2; Virgin Media O2 response to the July 2024 consultation, p.3.

make associated facilities available and have the potential to generate malicious signalling activity.

- 4.99 While the content of the Guidance largely presents the content we set out in the July 2024 consultation, we considered it helpful to add some examples to alert industry to possible scenarios that have a greater potential to generate malicious signalling. We therefore included two examples of services that have the potential to generate malicious signalling: GT modification services and HLR lookup services. Where range holders are providing services such as these two examples where there is a higher risk of enabling their customers (including other communications providers, businesses or other actors) to misuse the signalling capabilities of their GT, we expect range holders to implement further checks, controls and measures that are appropriate for these higher risk services.
- 4.100 As we implement our ban on GT leasing, we are mindful of the availability of alternative arrangements to GT leasing (e.g. GT modification services) offered by range holders (including those that have previously leased their GTs) and the risk that these alternative GT-based services could result in malicious signalling.¹³⁶
- 4.101 More generally, our aim is to help number range holders ensure that their customers (including other communications providers, businesses or other actors) use their GTs to only provide legitimate mobile services.
- 4.102 In response to Jersey Telecom, we consider that the Guidance proposes reasonable and proportionate steps range holders may be expected to take for their particular circumstances. With regard to the comments made by MVNO Europe and Jersey Airtel, we consider that the new Guidance is unlikely to impose any significant additional burdens in terms of costs or technical complexity beyond what is already required to ensure compliance with the General Conditions.
- 4.103 Overall, we believe this Guidance will support the reduction of the degree and risk of harm to UK / international citizens from GT misuse and strengthen compliance with relevant obligations in the General Conditions and Non-Provider Condition.

Our decision

- 4.104 For the reasons set out above, we remain of the view that new Guidance is necessary to provide greater clarity to stakeholders on the steps we expect number range holders to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling. We therefore consider this new Guidance is necessary to significantly and effectively reduce the misuse of GTs and meet our objectives.
- 4.105 We also consider it necessary to close the potential loophole for operators that may not fall under the definition of a communications providers by introducing a new Non-Provider Condition corresponding to General Conditions B1.6 and B1.8 that applies to any operator that holds UK mobile numbers.
- 4.106 In the sub-section below titled 'Impact of measures to address Global Title misuse', we assess the impact of this new Guidance and Non-Provider Condition and set out our overall decisions on whether we consider it appropriate and proportionate to implement these measures to achieve our objectives. We discuss the practical implementation of this Non-Provider Condition in Section 5.

¹³⁶ See [Guidance for number range holders on to prevent misuse of Global Titles](#).

Addressing the creation and misuse of Global Titles from numbers not allocated for use

Background and our proposal

- 4.107 In our July 2024 consultation, we noted that some of the malicious signalling originating from +44 GTs could result from bad actors creating and misusing GTs from numbers not allocated for use, including in relation to UK GTs. For example, this could be from numbers withdrawn when an operator goes out of business.
- 4.108 General Condition B1.3 prohibits the use of telephone numbers by communications providers unless that number is currently allocated. To ensure that all operators who might create and use GTs only do so from numbers which are allocated for use, we proposed to introduce similar rules by adding a Non-Provider Condition corresponding to General Condition B1.3.
- 4.109 We explained that this ensures the current General Condition relating to unauthorised use of numbers applies to all operators that hold UK mobile numbers.

Consultation responses

- 4.110 There was strong support for our proposal to strengthen our rules to prohibit the creation of GTs from numbers not allocated for use.¹³⁷
- 4.111 Jersey Airtel¹³⁸, Vodafone¹³⁹, and XConnect¹⁴⁰ noted that consistent enforcement of the proposed new rules would be important to address this problem.
- 4.112 Vodafone encouraged the consideration of a mechanism for sharing intelligence on the misuse of GTs created from non-allocated number ranges, and XConnect supported Ofcom working with the GSMA on this issue.¹⁴¹

Our assessment

- 4.113 We remain of the view that it is necessary to implement a new rule that ensures that all operators who might create and use GTs are prohibited from doing this if the numbers are not allocated for use (regardless of whether or not they may be considered a communications provider within the scope of General Condition B1). This will close a potential loophole bad actors may exploit and ensure the current rules in the General Condition relating to unauthorised use apply consistently to all operators that hold UK mobile numbers.

¹³⁷ 3G Telecommunications Limited response to the July 2024 consultation, p.4; Bluewave Communications Limited response to the July 2024 consultation, p.1; Jersey Telecom response to the July 2024 consultation, p.3; MVNO Europe response to the July 2024 consultation, p.3; Transatel response to the July 2024 consultation, p.3; Wireless Logic response to the July 2024 consultation, p.2.; Federation of Communications Services response to the July 2024 consultation, p.3; Cubic Telecom response to the July 2024 consultation, p.5; BT Group response to the July 2024 consultation, p.9; Mobile Ecosystem Forum response to the July 2024 consultation, p.4; Sure Telecom response to the July 2024 consultation, p.33; P1 Security response to the July 2024 consultation, p.5.

¹³⁸ Jersey Airtel response to the July 2024 consultation, p.2.

¹³⁹ Vodafone response to the July 2024 consultation, p.4.

¹⁴⁰ XConnect response to the July 2024 consultation, p.4.

¹⁴¹ Vodafone response to the July 2024 consultation, p.4; XConnect response to the July 2024 consultation, p. 4.

- 4.114 We note stakeholder responses relating to enforcement. Our approach to enforcement is set out in Section 5 and more generally in Ofcom’s enforcement guidelines.¹⁴² We would expect to enforce against relevant operators for breaches of the existing General Condition and the new Non-Provider Condition in appropriate cases, taking into account guidance Ofcom has given in relation to the specific obligations.
- 4.115 We agree with respondents on the value of sharing information with the GSMA. Where we receive intelligence that signalling is being received from UK GTs created from number ranges which have not been allocated for use, we will consider how we may be able to share this information with GSMA so it can pass it on to its members, taking into account any relevant disclosure restrictions we are subject to.

Our decision

- 4.116 For the reasons set out above, we consider implementing a new Non-Provider Condition that corresponds to GC B1.3 is necessary to ensure we significantly and effectively reduce the misuse of GTs and meet our objectives.
- 4.117 Below we assess the impact of this new Non-Provider Condition and set out our overall decision on whether we consider it appropriate and proportionate to implement this new Non-Provider Condition to achieve our objectives. We discuss the practical implementation of this Non-Provider Condition in Section 5.

Impact of measures to address Global Title misuse

- 4.118 Under our regulatory principles, we have a bias against intervention, and we will only intervene if we consider it appropriate and proportionate to do so. This is based on our duty under section 3(3)(a) of the 2003 Act to have regard to the principles under which regulatory activities should be proportionate and targeted only at cases where action is needed.
- 4.119 In the paragraphs above, we have set out our decisions on the measures we consider to be necessary to sufficiently and effectively reduce the harms from GT misuse and achieve our objectives. In this sub-section, we assess whether the benefits of implementing the measures identified above outweigh their overall costs and adverse impacts. We then set out our decisions on whether implementing those measures is appropriate and proportionate.
- 4.120 We presented a provisional impact assessment relating to our proposals in our July 2024 consultation. In the paragraphs below, we set out our updated impact assessment in the light of the consultation responses, new information regarding the Additional Lessor¹⁴³ and its lessees, and further engagement with stakeholders. We first discuss the likely impact of a ban on GT leasing and then discuss the likely impact of the additional measures.

Impact of banning Global Title leasing

- 4.121 This sub-section is structured as follows:

¹⁴² Ofcom, 2025. [Regulatory Enforcement Guidelines for Investigations](#)

¹⁴³ We discuss the Additional Lessor in more detail in Annex A5.

- a) We first provide an updated view on the benefits that could be delivered by a ban on GT leasing.
- b) We then provide an updated assessment of the adverse impacts of the ban on GT leasing.
- c) Finally, we conclude whether the ban on GT leasing is appropriate and proportionate by assessing the benefits against the potential adverse impacts.

Benefits of banning Global Title leasing

4.122 Taking into account the analysis we carried out as part of our July 2024 consultation, as well as the responses that we received, we consider that a ban on GT leasing would lead to significant benefits for UK and international citizens, and the UK telecommunications industry. We summarise this evidence and how it supports our decision below.

Our July 2024 consultation

We considered that banning GT leasing will lead to significant benefits for both UK and international citizens

- 4.123 In our July 2024 consultation, we noted that the misuse of GTs can enable bad actors to spy on individuals, access personal communications and compromise security features.¹⁴⁴ This can lead to a range of harms to UK and international citizens including personal data breaches, financial losses and, for some cases, physical harm or intimidation. As such, we considered that severe and irreparable harm can occur from a single instance of misuse.
- 4.124 We then presented a range of evidence which indicated that significant volumes of malicious signalling attacks have originated from +44 GTs that have been leased or used by third parties. These findings are consistent with the general consensus among cyber security specialists that GT misuse is a major risk to mobile networks. In particular, GT leasing has broadened access to GTs and reduced transparency of ownership of GTs, thereby greatly increasing the likelihood of signalling misuse.
- 4.125 We stated that a ban on GT leasing would reduce the degree and risk of misuse by (i) stopping bad actors that currently access UK GTs through this route and prevent other bad actors from doing so in the future; and (ii) prevent number range holders that do not currently lease their GTs from doing so in the future, thereby further reducing the potential number of GTs that could be accessed by bad actors. Therefore, this could significantly reduce the degree and risk of harm to UK and international citizens (including as consumers of telecommunications services).¹⁴⁵
- 4.126 We noted that a ban on GT leasing would mean that lessors / lessees would likely have to develop and / or use alternative provisioning arrangements based on other solutions. We recognised that there may still be some risk of signalling-based attacks via these alternative arrangements¹⁴⁶, but we understood that restrictions placed on the use of these arrangements are more secure / effective than those placed on leased GTs. As such, we

¹⁴⁴ See Section 3 of our July 2024 consultation.

¹⁴⁵ We note that the benefits of a ban may be greater for persons with certain political views (a protected characteristic under the Northern Ireland Act 1998) or religious beliefs (a protected characteristic under the Equality Act 2010 and the Northern Ireland Act 1998) than for consumers and citizens as a whole, as there may be a higher risk of being targeted by malicious signalling facilitated by the misuse / leasing of GTs. We set out our public sector equality obligations in Section 2.

¹⁴⁶ See paragraphs 4.74–4.77 of our July 2024 consultation.

considered that the ban on GT leasing would still lead to a substantial reduction in malicious signalling and associated harm for UK and international citizens.

- 4.127 Furthermore, in light of the evidence of misuse of UK GTs that we set out in our July 2024 consultation, we considered that a ban on GT leasing would also help us to fulfil our duties under the Act which requires us to ensure the best use of telephone numbers, and encourage efficiency and innovation for that purpose. It also aligned with our broader strategy to promote network security and resilience.

We further considered that banning Global Title leasing would support the UK telecommunications industry

- 4.128 In the July 2024 consultation, we stated that banning GT leasing would lead to a reduction in the frequency of security incidents involving UK networks. This could lead to further benefits such as:
- a) It could strengthen the reputation of the UK telecommunications industry and support the integrity of UK telephone numbers, thereby supporting UK operators (including current lessors) in their negotiations of agreements with international carriers (such as SMS interworking agreements and roaming agreements) and reduce the chances that legitimate UK traffic is blocked in error. It would also foster trust for users, knowing that their data and communications are secure when using UK networks.
 - b) It could ensure the smooth running of mobile networks within the UK (and across the world), thereby reducing the potential for service disruptions to these operators and their end users.
 - c) It could also reduce the potential costs for UK operators (including lessors) from having to address and handle any potential implications following incidents of GT misuse.

Stakeholder responses

- 4.129 There was broad agreement from stakeholders on the benefits that would be delivered from the ban on GT leasing:
- a) Telecoms industry bodies (i.e. FCS and MEF) recognised the risks of GT misuse on citizens / industry and considered that the ban on GT leasing will help protect mobile services. In particular, MEF stated that: *“... the extreme harm that an individual may suffer as a result of the abuse of GT should weigh heavily in favour of banning GT leasing.”*
 - b) Stakeholders broadly understood the security concerns that have arisen from GT misuse (and any further misuse that could arise without intervention) and understood the rationale for Ofcom to restrict third-party access to GTs. In particular, Vodafone¹⁴⁷ stated that they: *“have experienced malicious signalling using GTs leased by parties assigned number ranges”* and considered that the current situation with GT leasing has brought the UK industry into disrepute and has the potential to harm UK networks and consumers.
- 4.130 We note that one stakeholder (3G Telecommunications) argued that the benefits could be lower than we have indicated as bad actors will switch to different methods, which will be more hidden than the current methods. Vodafone also stated that a ban on GT leasing will not, by itself, prevent bad actors from generating malicious signalling, but Vodafone considered that (i) banning GT leasing will make it easier to determine if GTs are valid; and

¹⁴⁷ Vodafone response to our July 2024 consultation, p.2.

(ii) the fact that bad actors could circumvent regulation is not a reason to avoid regulation in the first place.

Our assessment

- 4.131 We consider that banning GT leasing will lead to significant benefits as it will significantly reduce the misuse of UK GTs and the consequential harms to UK and international citizens. It will further support the UK telecommunication industry by (i) strengthening its reputation; (ii) ensuring the smooth running of UK mobile networks; and (iii) reducing the potential costs for UK operators to address and handle any incidents of GT misuse.
- 4.132 We recognise that some bad actors could potentially seek to circumvent our ban (e.g. they could access and misuse GTs from other countries instead), but our ban would still lead to significant benefits by removing an important avenue for bad actors to access SS7 signalling. This avenue is particularly attractive to bad actors given the comparative prominence of +44 GTs as a source of malicious signalling, and the attractiveness of +44 GTs as sources of signalling traffic which are presumed to be trusted. We have also limited our exemptions to the ban (see paragraphs 4.46-4.84 above), which further safeguards that avenue and should ensure that bad actors are not able to circumvent our rules within the UK.
- 4.133 Furthermore, as explained in Sections 2 and 3, we understand that some other governments and regulators (including CD regulators) are considering whether actions are needed to prevent the misuse of GTs in their jurisdictions, and we will continue to work with other regulators to inform and support their consideration of interventions to tackle GT misuse around the world.
- 4.134 In addition, while there is a possibility that bad actors which have previously accessed UK GTs may seek to access non-UK GTs, this does not undermine the wider benefits to the reputation of the UK telecommunication sector that could be delivered by a ban on GT leasing.

Adverse impact of banning Global Title leasing on stakeholders

- 4.135 In the July 2024 consultation, we assessed the adverse impact of our ban on those stakeholders that could be affected. This included (i) operators / range holders that lease their GTs (lessors); (ii) operators / businesses that use the leased GTs (lessees); and (iii) end users (consumers and businesses) that purchase services from the lessees. We provisionally concluded that there would be a limited impact on each type of stakeholder.
- 4.136 Since then, we have been informed by the Additional Lessor [redacted] of additional GT leasing activities in their response to the January 2023 Information Request. As a result, there are more parties and use cases that could be affected by our ban on GT leasing compared to our understanding at the time of the July 2024 consultation. We have obtained further information on these use cases using our statutory information gathering powers¹⁴⁸ and in the paragraphs below, we have updated our impact assessment, taking into account these additional use cases and impacts on lessors, lessees and end users.

¹⁴⁸ [redacted] responses to information request, 17 September 2024 and 4 March 2025; an update meeting with [redacted] on 24 March 2025; [redacted] response to information request, 21 February 2025, and clarification email, 21 February 2025; [redacted] response to information request, 12 February 2025.

- 4.137 We first discuss the adverse impact on use cases that relate to the Additional Lessor. We then consider the responses we received in relation to our assessment of the impact on the original use cases that we identified in our July 2024 consultation.¹⁴⁹
- 4.138 We focus our assessment on use cases that rely on GTs from UK lessors as our policy decision does not directly impact CD lessors, nor their lessees and end users. We do, however, take into account responses from CD-based stakeholders to the extent they provide more general information we consider relevant to our impact assessment for UK use cases, including in relation to their broader views on the feasibility of alternative arrangements.

Adverse impact on use cases from the Additional Lessor ([REDACTED])

- 4.139 In the paragraphs below, we provide our assessment of the adverse impact of a ban on GT leasing on lessors, lessees and end users in relation to the following lessee use cases identified by the Additional Lessor, [REDACTED]:
- a) MVNO services;
 - b) Mobile Virtual Network Aggregator and Enabler (MVNA / E) services; and
 - c) IoT services.

MVNO services

Our July 2024 consultation

- 4.140 In our July 2024 consultation, we acknowledged that a ban on GT leasing could have an adverse impact on those MVNOs that rely on GTs. In particular, we noted that our ban could have significant impact on any ‘thick MVNOs’¹⁵⁰ that rely on GTs, as these MVNOs may find it more challenging to switch to alternative arrangements. At the time we expected that these MVNOs would have to either (i) obtain their own mobile numbers directly from Ofcom, form GTs and negotiate roaming agreements¹⁵¹; or (ii) switch towards a ‘thin MVNO’¹⁵² model that relies more on the host mobile network. We also noted that the vast majority of MVNOs in the UK market do not rely on leased GTs to provide their services.

Additional information requests and stakeholder responses

- 4.141 We understand two MVNOs currently rely on GTs from the Additional Lessor to provide their services:
- A thick MVNO ([REDACTED]) uses leased GTs as network addresses for core network elements to support its domestic mobile services and outbound roaming. This MVNO ([REDACTED]) has however requested to switch to a hosted thin MVNO solution (which does not rely on GT leasing), as part of their contract renegotiations.¹⁵³ This request was motivated by

¹⁴⁹ This sub-section relies on the following responses to the Lessor Information Request: [REDACTED] dated 16 February 2024, [REDACTED] dated 13 February 2024, [REDACTED] dated 16 February 2024, [REDACTED] dated 27 February 2024, [REDACTED] dated 13 February 2024, [REDACTED] dated 13 February 2024 and [REDACTED] dated 16 February 2024.

¹⁵⁰ These are MVNOs that have their own core network components (such as HLR or a prepaid billing system), which a ‘thin MVNO’ would not have.

¹⁵¹ We now further note that a similar alternative to this solution would be to connect to a roaming hub.

¹⁵² Thin MVNOs do not have their own core network components and instead use hosted services provided by an MNO partner. As a result, thin MVNOs would be less affected by our ban on GT leasing, as they typically rely on the MNO partner’s roaming agreements and GTs.

¹⁵³ This was requested in advance of the MVNO contract expiring in [REDACTED].

[X]. The lessor provided an update on its costs for migration of this lessee to an alternative arrangement.¹⁵⁴

- A thin MVNO [X] uses leased GTs as network addresses for core network elements provided by [X], its MVNE, to support its mobile services. The Additional Lessor has confirmed that it is already in the process of migrating the thin MVNO ([X]) to alternative arrangements that do not require GT leasing and expects this to be completed within our implementation period (by [X]).

Our assessment and conclusion on potential adverse effects on MVNO services

4.142 Having taken account of the additional information from the Additional Lessor and our recent engagement with stakeholders, we consider that the ban on GT leasing will have a limited adverse impact on the Additional Lessor, its lessees and their end users for the MVNO use case:

- *Lessors:* Our ban will have a limited impact on the Additional Lessor as it has confirmed that it can migrate its MVNO lessees onto alternative use cases and it can therefore continue to provide services to these MVNOs. In addition, we note that the Additional Lessor has not indicated that costs are excessive or disproportionately high in relation to our proposed ban on GT leasing, which could indicate that costs are manageable for these operators.
- *Lessees and end users:* We also consider that the impact on lessees and end users is likely to be limited due to the same reasons as set out above. We note that no UK lessor or lessee raised an objection to costs being excessive or disproportionately high for lessees, or that there would be any cost to end users.

Mobile Virtual Network Aggregator and Enabler (MVNA / E) services

Our July 2024 consultation

4.143 We did not cover this use case in our July 2024 consultation as we were not aware of any instances of MVNA / E services that relied on leased GTs from UK operators.

Additional information requests and stakeholder responses

4.144 We understand that there is one lessee, [X], that leases GTs from the Additional Lessor for this use case.¹⁵⁵ We understand from our engagement with these stakeholders, and their responses to our information requests, that:¹⁵⁶

- The lessee has been able to identify an alternative arrangement that does not rely on GT leasing and had already moved a significant proportion of its traffic away [X] from leased GTs by February 2025; and
- The lessee did not believe that the potential requirement to migrate to an alternative arrangement from GT leasing would: (i) restrict its ability to deliver its services to third-party

¹⁵⁴ The lessor estimated its total cost of migrating the lessee from thick to thin MVNO at [X], which would cover capital expenditure on development (projects costs, billing enhancements, migration costs, testing, [X], capacity uplifts and licences ([X]), as well as operational costs for [X]. The migration process would require 4 phases: (1) supporting lessee in moving to a new IMS provider, (2) building lessee's new hosted service, (3) technical migration, (4) SIM migration.

¹⁵⁵ [X] responses to information requests, 17 September 2024 and 4 March 2025; [X] response to information request, 12 February 2025.

¹⁵⁶ [X] response to information request, 12 February 2025; [X] response to information request, 4 March 2025.

customers; or (ii) result in any material additional costs to the lessee or third-party customers.

Our assessment and conclusion on potential adverse effects on MVNA / E services

4.145 Having taken account of the additional information supplied by the Additional Lessor and further information we have gathered, we consider that the ban on GT leasing will likely have a limited negative impact on the Additional Lessor, its lessee, [X], and end users.

IoT services

Our July 2024 consultation

4.146 At the time of our July 2024 consultation, we were not aware of any instances of Internet of Things (IoT) services that relied on GTs leased from UK lessors and we, therefore, did not explicitly address this use case in our provisional impact assessment.

Additional information requests and stakeholder responses

4.147 We understand there is one lessee, [X], that leases GTs from [X], for this use case.¹⁵⁷ [X] uses the leased GTs to provide a range of vehicle connectivity services to end users. We understand from our engagement with [X] and its response to our information request that:¹⁵⁸

- [X] was already planning on migrating away from GT leasing to using its own GTs. In particular, [X] indicated that some of its services could be migrated to its own GTs by the end of the proposed implementation period (1 January 2026).
- [X] did indicate that it would need longer to migrate to its own GTs for other services, as it would need time to run an over-the-air (OTA) update campaign with its end users' devices in vehicles. In particular, [X] provides services to a fleet of legacy vehicles which use an eSIM card that relies on the lessor's GTs to connect with other networks in Europe. [X] has already started to migrate these vehicles away from relying on [X]'s GTs in 2018 and it had migrated around 94% of these vehicles by the end of 2025 (illustrated in Table 4.1).
- However, we understand from a meeting with [X] and [X]¹⁵⁹ that [X] could use GT modification as an interim solution if it needed more time for the migration process beyond the end of the implementation period.

Table 4.1: Number of legacy product updates delivered by [X] by 2024.

Year	Number of vehicles updated
Total Fleet	[X]
2018	[X]
2019	[X]
2020	[X]

¹⁵⁷ [X] response to our July 2024 consultation, [X].

¹⁵⁸ [X] response to information request, 21 February 2025.

¹⁵⁹ Ofcom / [X] and [X] meeting, 24 March 2025.

2021	[X]
2022	[X]
2023	[X]
2024	[X]
Total Updated	[X]
Remaining	[X]

Source: [X] response to information request, 21 February 2025.

Our assessment and conclusion on potential adverse effects on IoT services

- 4.148 Given the above, we consider that the ban on GT leasing will likely have a limited impact on the affected parties as [X] confirmed that alternative arrangements are available that do not rely on GT leasing. In addition, we note that none of the affected parties (i.e. the Additional Lessor and [X]) raised a concern that costs are excessive or disproportionate in response to our proposed ban on GT leasing, which could indicate that costs are manageable for these operators.¹⁶⁰
- 4.149 We recognise that the costs of migration could depend on the length of the implementation period, but we consider that our extended implementation period (discussed at the end of this section) should provide [X] with sufficient time to migrate the vast majority of its services. In particular, for legacy product updates, we note from Table 4.1 above that [X] has already managed to migrate the vast majority of its services (c. 94%) by 2024 and the annual migration rate has declined significantly from c. 89% in 2018 to c. 0.03% of the total fleet by 2024. As such, we consider that the remaining products that could still be updated (i.e. those that are not decommissioned etc) are relatively minor.
- 4.150 In any case, we understand [X] can use GT modification as an interim solution if it needs more time to migrate its services after the ban on GT leasing is implemented. This could therefore further reduce any potential adverse impact on the affected parties (although for the reasons explained in paragraphs 4.77–4.79 above, we encourage lessees and lessors to explore the feasibility of approaches that do not involve GT modification).

Adverse impact on use cases identified in the July 2024 consultation

- 4.151 In the paragraphs below, we provide an assessment of responses to our provisional impact assessment in the July 2024 consultation. We focus our assessment on four use cases covered in that provisional impact assessment: MVNO, outbound roaming / sponsored roaming services, authentication services, least cost routing services and ‘Communications Platform as a Service’- CPaaS.¹⁶¹ We also respond to comments from respondents on our general approach to conducting the impact assessment.

Our July 2024 consultation

¹⁶⁰ We note that the Additional Lessor initially provided some information on the estimated cost to itself of migrating the lessee away from GT leasing but these costs no longer reflect the current situation with [X]. We have not received any further updates on costs from the Additional Lessor but note that neither the Additional Lessor nor the lessee [X] raised a concern in relation to migration costs.

¹⁶¹ CPaaS includes number authentication services.

4.152 We provisionally concluded that a ban on GT leasing would likely have a limited adverse impact on end users and most lessors / lessees. For end users, we understood that only a small fraction of them were likely to be affected and that they also typically have access to alternatives that do not rely on GT leasing. For lessees and lessors, we acknowledged that some would be affected to a greater extent than others but considered that the overall impact was likely to be limited as alternatives are available. Furthermore, we suggested that the implementation period would further reduce the burden of our proposal by providing the affected parties with time to move to alternative arrangements if needed.

4.153 Specifically, we considered the following for each of the original use cases:

- **MVNO services** – at the time of our July 2024 consultation, we were aware of [X] MVNO, that relied on leased UK GTs. We considered that our proposal would likely have a limited impact on this use case as its lessor indicated that it was already planning to migrate the lessee towards an alternative arrangement that did not require GT leasing independent of any policy decision we might make.
- **Outbound roaming services** – we stated that a ban on GT leasing would likely have a limited impact as alternative arrangements exist, for example, in the form of GT modification services.
- **HLR lookup services** – we considered that a ban on GT leasing will likely have a limited impact on authentication and least cost routing services because we considered alternative arrangements were available through APIs.
- **CPaaS** – we noted in the July 2024 consultation that [X] [X] lessee currently using GT leasing for this purpose. We considered that the impact on this use case is likely to be limited as its lessor, [X], suggested that it can develop alternative arrangements for the lessee and the lessee will not experience any differences in its service.

Stakeholder responses

4.154 We received a number of responses from stakeholders (Bluewave, P1 Sec, Wireless Logic, Tango Network, Vodafone, FCS and MEF) that agreed with our provisional impact assessment. In particular, MEF stated that the: *“extreme severity of the harm that can be done to individuals through the abuse of GTs should be weighed against the relatively small proportion of communications providers that admit to leasing GTs and the limited voluntary compliance with the GSMA’s GT Leasing Code of Conduct.”*

4.155 We also received a range of responses for each of the original use cases and we have engaged with some stakeholders to better understand their views. Our understanding for each of the original use cases is as follows:¹⁶²

- **MVNO services** – we have engaged further with the UK lessor, [X], who leases a GT to an MVNO, [X], and this lessor confirmed¹⁶³ that it has already initiated plans to migrate the lessee to an alternative arrangement that does not rely on GT leasing. The lessor confirmed that these changes can be delivered by 1 January 2026.

¹⁶² We also note that a number of stakeholders supported our objective of addressing the misuse of GTs but requested the use case of the respondent to be exempted from the ban on GT leasing and / or for certain alternative arrangements to be allowed.

¹⁶³ Email from [X], 5 February 2025.

- **Outbound / sponsored roaming services** – we note that a UK lessor ([X]) for this use case agreed with our provisional impact assessment but requested a longer implementation period.
- **HLR lookup services** – we received responses from UK lessors and lessees that provided mixed views on the impact of banning GT leasing. [X], a UK lessor, found the proposed alternative solutions to GT leasing to be acceptable and agreed they could migrate their lessees across to these alternative arrangements within our provisional implementation period. [X] agreed with our provisional impact assessment. It stated that the proposed alternative arrangements are theoretically possible, though it noted that such alternative arrangements are not currently widely available and scalable.
- **CPaaS** – we engaged further with the lessor ([X]) who confirmed that it has a “supplier / customer” relationship with its lessee, [X], that is currently using GT leasing solely for this purpose. In particular, [X] is the supplier of the platform that is used to provide [X]. [X] therefore considers this use case to fall within the definition of the “supplier exemption” we proposed in the July 2024 consultation, such that the ban would not impact on this use case.

4.156 We also received a range of consultation responses from CD operators, including lessors and lessees, some of which suggested a ban on GT leasing would have a significant impact on their ability to generate revenue from use cases that currently rely on GT leasing. We explain above that our ban on leasing UK GTs will not apply to CD operators, and it will not therefore have any direct impact on use cases that rely on GTs from CD operators. However, we have considered comments on our general approach to assessing the adverse impact of our ban on GT leasing from some of these respondents:

- Jersey Airtel acknowledged the potential risks / harms that could arise from the misuse of GTs, but it argued that our impact assessment did not adequately consider the financial, operational and strategic impact on smaller operators; and
- Sure (Guernsey) understood that revenue from illegitimate sources should be discounted from the overall impact assessment. However, it considered that our evidence on harms could have potentially picked up benign misconfigured signalling rather than malicious signalling. It also emphasised there should not be an assumption that, because of one rogue GT lessor, that all GT lessors’ revenue can be similarly discounted.

Our assessment and conclusion on the adverse impact of original use cases

4.157 We consider that a ban on GT leasing would have a limited impact on lessors, lessees and end users that rely on the original use cases. This is because:

- **MVNO services** – the ban on GT leasing will not have an impact on this service as the lessor is able to migrate the lessee onto alternative arrangements independent of our policy decision and within our implementation period.¹⁶⁴
- **Outbound / sponsored roaming services** – the ban on GT leasing will have a limited impact on the affected parties as alternative arrangements are available (e.g. GT modification) and no UK stakeholder raised a concern or contradicted this position.

¹⁶⁴ Note that the impact on the other MVNO [X] leasing its GTs from the Additional Lessor is discussed in the preceding sub-section.

- **HLR lookup services** – the ban on GT leasing is likely to have a limited impact on the affected parties. Regarding the concern raised by a lessee [3<] on the availability and scalability of alternative solutions, we note that the relevant lessor agreed with our provisional impact assessment and considered that alternative arrangements are acceptable to it.
- **CPaaS** – we now understand that [3<] use case is exempt from the ban on GT leasing, as it appears likely to fall within the definition of supplier use. As such, we consider that our ban on GT leasing would have no impact on this lessor, lessee and its end users.

4.158 In relation to responses from CD operators on our general approach to assessing the adverse impacts:

- We agree with Cubic Telecom and Jersey Airtel that the costs to deploy alternative arrangements will vary between stakeholders and, as we stated in our July 2024 consultation, we recognise that smaller lessors may face a proportionately higher burden to develop or migrate onto alternative arrangements. However, we consider that the adverse impact is likely to be limited in relation to the leasing of UK GTs (regardless of the size of lessor / lessee) as we have not received any evidence to suggest that the costs of moving to alternative arrangements are excessive or disproportionate.
- We agree with Sure (Guernsey) that revenue from illegitimate sources should not be considered within the overall impact assessment. We did not assume that all GT leasing activities are illegitimate in the July 2024 consultation as we recognised that some GT leasing activities do support legitimate use cases. In addition, we acknowledge that some of the measures used by Enea to identify malicious signalling could include a mix of benign and malicious signalling. However, as reported in the July 2024 consultation, Enea used a range of measures to identify malicious traffic and certain measures (such as its Threat Source Score measure, key threat types and its snapshot analysis) are more focused on malicious signalling. We therefore consider that the Enea Report clearly demonstrates that +44 GTs are a major source of malicious signalling traffic. This finding is consistent with the views of other experts in this field.¹⁶⁵

We conclude that the expected benefits of a ban on Global Title leasing will outweigh any adverse impacts on stakeholders

4.159 We consider that banning GT leasing will effectively prevent bad actors from accessing leased (and sub-leased) UK GTs. This will (i) significantly reduce the degree and risk of harm to UK and international citizens; and (ii) support the UK telecommunication sector by enhancing its reputation, reducing the frequency of security incidents and reducing the costs of dealing with these incidents. It will also promote transparency by ensuring that only range holders could create and use GTs. We therefore consider that the ban on GT leasing will satisfy our objectives and result in significant benefits.

4.160 We remain of the view that a ban on GT leasing will have a limited impact on UK lessors because:

- Consultation and information request responses from lessors indicated that alternative arrangements are available for all use cases, and lessors can migrate their existing

¹⁶⁵ See for instance GSMA's work: <https://www.gsma.com/solutions-and-impact/technologies/security/latest-news/fighting-back-against-the-abuse-of-global-title-leasing/>.

lessees to these arrangements (subject to our discussion below on implementation periods).

- Some lessors have already started to migrate their lessees onto alternative arrangements and no lessor has raised a concern that costs are disproportionate or excessive in response to our proposed ban on GT leasing, which indicates that costs should be manageable for lessors.¹⁶⁶
- Some lessors confirmed that they were already moving their lessees away from GTs independently of, or in advance of, our decision.

4.161 We also consider that the impact on lessees / end users that currently rely on UK lessors is likely to be limited for similar reasons to those set out above. In particular, we do not expect there to be a material increase in costs for lessees or end users, given that no UK lessor / lessee raised an objection to costs being excessive or disproportionate.

4.162 Overall, we consider that banning GT leasing is appropriate and proportionate as (i) it achieves our policy objectives including by significantly and effectively reducing the misuse of UK GTs (unlike alternative approaches which may reduce GT misuse to some extent but will not allow us to achieve our objectives); and (ii) the benefits of banning GT leasing significantly outweigh the potential limited impact on the affected parties. We further remain of the view that the ban on GT leasing would have a limited impact on competition and investment incentives as there are alternative ways of providing these services to lessees and end users.

4.163 Moreover, it is important to place our rules within the wider context of the planned withdrawal of 2G and 3G services within the UK, and the rest of the world, over the next few years. As discussed in Section 3, the risk of harm through the withdrawal period is still significant and justifies taking action to reduce this risk of harm. The planned withdrawal does, however, mean that lessors and lessees will have to eventually move away from SS7-based signalling services for UK-based services, regardless of any regulation of GTs. As such, the impacts of a ban on GT leasing could be viewed as bringing forward some costs that would anyway be incurred by market participants in the years ahead.¹⁶⁷

4.164 With respect to some CD operators indicating that our ban on GT leasing would have a significant negative impact on their operations, we note that the ban on leasing of UK GTs does not apply to lessors of non-UK GTs as they are outside our jurisdiction.

4.165 We do, however, recognise that the ban on GT leasing could have some adverse impacts on existing lessors, lessees and end users. To help mitigate those impacts, we consider it appropriate to introduce an implementation period before the ban on existing leasing arrangements comes into force. Our aim is to provide the affected lessors and lessees with sufficient time to prepare and migrate to alternative solutions and dissolve legacy arrangements (if needed). This will in turn help mitigate any potential adverse impacts of

¹⁶⁶ We have only received information on migration costs from one lessor ([X]) in relation to two use cases – MVNO ([X]) and IoT ([X]). We consider these costs to be manageable for the lessor as it stated it is feasible for them to move lessees away from GT leasing (and they have also already started doing so).

¹⁶⁷ Operators offering services to UK consumers will need to move away from SS7-based services using GTs before mobile operators complete their withdrawal of 3G networks in 2031 at the latest. Although the final withdrawal date for 2G and 3G services in other countries is yet unknown, the number of networks in use is declining steadily and therefore the scope to offer SS7 based services to consumers in those countries is also declining (including UK consumers roaming in those countries).

the ban on GT leasing on end users. We explain our decisions on the implementation period below.

Views on use cases unaffected by our ban on GT leasing

- 4.166 We are aware of two use cases (penetration testing and A2P SMS) that only rely on leased GTs from CD lessors. We have not assessed the impact of our ban on these use cases as our ban on the leasing of UK GTs does not affect the provision of these use cases.

Impact of banning third parties from creating or using Global Titles from sub-allocated numbers

- 4.167 In the paragraphs below we provide an updated assessment on the impact of banning third parties from creating or using Global Titles from sub-allocated numbers.
- 4.168 As explained above, we consider it necessary to ban the creation or use of GTs from sub-allocated numbers to close a potential loophole that bad actors may otherwise exploit to misuse GTs after the ban on leasing of GTs comes into effect. We have not been made aware of any third-party operators having created their own GTs from their sub-allocated numbers to support their own provision of legitimate mobile services. We therefore continue to consider that banning the creation or use of GTs from sub-allocated numbers will have a limited adverse impact on stakeholders.
- 4.169 While banning the creation or use of GTs from sub-allocated numbers could potentially limit flexibility for any operators that rely on sub-allocation, we note that no stakeholder using UK numbers has reported such a potential adverse impact, or argued that any such impact would be material. To mitigate any potential impacts on any operator that has created GTs from their sub-allocated numbers, we have nonetheless decided it is appropriate to introduce an implementation period before the ban comes into force, which we explain further in the implementation period below.
- 4.170 Overall, we consider our ban on the creation or use of GTs from sub-allocated numbers by third parties is an appropriate and proportionate means to achieving our policy objective. It also received strong support from UK stakeholders.

Impact of additional measures

- 4.171 In the paragraphs below we provide an updated assessment on the impact of the additional measures we proposed in our July 2024 consultation to reduce the risk of harm from GT misuse.
- 4.172 In summary, we proposed to implement the following additional measures:
- a) Misuse of GTs by range holders. We proposed to:
 - i) Provide Guidance on the types of steps range holders are expected to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
 - ii) Implement a new Non-Provider Condition that ensures the current rules in the General Conditions relating to misuse of GTs by number range holders apply to all operators that hold UK mobile numbers.
 - b) Misuse of GTs created from numbers not allocated for use. We proposed to:

- i) Implement a new Non-Provider Condition that ensures the current rules in the General Conditions relating to unauthorised access apply to all operators that hold UK mobile numbers.
- 4.173 We said we expected these measures would further reduce the degree and risk of harm to UK / international citizens. We said they should also support the effective functioning of the UK telecommunications sector by reducing the frequency of security incidents and make it clear that range holders are accountable for their use of GTs.
- 4.174 We expected the overall impact of these additional measures on stakeholders to be limited due to the following reasons:
- a) We noted that range holders are already subject to rules requiring them to secure the efficient and effective use of numbers which prohibits the misuse of numbers under the General Conditions. This means they should already have processes in place to ensure the services they provide (including those that use GT as an input) do not generate malicious signalling and that their customers are not using a service for an illegitimate purpose. We also noted that our proposals do not affect operators' ability to offer legitimate mobile services to their customers. We therefore considered that our proposals would be unlikely to impose any significant additional burden beyond those already required by the General Conditions.¹⁶⁸
 - b) We did not consider that adding a Non-Provider Condition corresponding to General Condition B1.3 relating to the misuse of numbers not allocated for use should have any negative impact on stakeholders. As discussed above, this measure only prevents operators from engaging in illegitimate activities whereas we only consider it appropriate to take account of the impact on the ability of stakeholders to provide legitimate services, which should not be affected by this measure.
- 4.175 Given the discussion above, we considered the proposed additional measures to be appropriate and proportionate to address the risk of harm from the misuse of UK GTs. We invited inputs from affected stakeholders that might be significantly impacted by these proposals.

Stakeholder responses

- 4.176 We note that no stakeholders raised a concern about these proposed measures being disproportionate or excessive, or identified adverse impacts on holders of UK mobile numbers.

Our assessment and decision

- 4.177 We remain of the view that our additional measures will lead to significant benefits as they will reduce the harms of GT misuse to UK and international citizens. For the reasons set out above, we consider that any potential adverse impact of our additional measures will be limited and note that no stakeholder raised this as an issue. To the extent operators within the scope of the new Non-Provider Condition relating to misuse of GTs are not currently taking appropriate steps to prevent misuse when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling, we consider any impact on those operators to be significantly outweighed by the reduction in harm these rules should result in. We therefore consider that our additional measures are appropriate and proportionate means to achieving our policy objectives.

¹⁶⁸ This is in line with our impact assessment for the [Good Practice Guide](#).

Implementation period

Background and our proposal

- 4.178 In the paragraphs above, we have set out our overall decisions on the measures we consider to be appropriate and proportionate to achieve our objectives and which we have decided to implement. In this sub-section, we assess if it is appropriate to allow an implementation period for each of those measures to help mitigate any transitional adverse impacts, and if so, what should be the duration of the implementation period. Firstly, we summarise respondents' views and then we set out our decision on the implementation period for each measure.
- 4.179 In our July 2024 consultation, we proposed to introduce a 9-month implementation period before the ban on GT leasing, and the ban on third parties creating or using GTs from sub-allocated numbers, came into force. We explained that this was to help mitigate the impact of our proposals on lessors, lessees and end users.
- 4.180 Our aim was to provide affected stakeholders with sufficient time to prepare and migrate to alternative solutions and dissolve legacy arrangements (if needed).
- 4.181 We proposed to implement our new Non-Provider Conditions corresponding to existing GCs immediately after publication of our statement.
- 4.182 We similarly proposed that our new Guidance for number range holders to prevent misuse of GTs would come into effect immediately after publication of our statement.

Consultation responses

- 4.183 We received a range of views on the length of the implementation period for the GT leasing ban:
- a) One group of respondents supported 9 months: this included one of the lessors [X], Vodafone, Virgin Media O2, XConnect, and the MEF.¹⁶⁹ The FCS said we should implement changes as soon as possible.¹⁷⁰ Separately, a lessor [X] confirmed to us that it would be able to transition away from GT leasing for its affected use case [X] by January 2026.¹⁷¹
 - b) Another group of respondents argued the implementation period should be extended to allow sufficient time to implement alternative approaches. They included:
 - Wireless Logic, who said that 12 months was required.¹⁷²
 - [X], who said that it required 18 months from the statement to design, build and launch alternative arrangements for [X].¹⁷³ [X] said that 9-months would be achievable, but it would like to be able to request an extension to 13 months as a contingency.¹⁷⁴

¹⁶⁹ [X] response to July 2024 consultation p. [X]; Vodafone response to July 2024 consultation p. 4; Virgin Media O2 response to July 2024 consultation p. 3; XConnect response to July 2024 consultation p. 4; Mobile Ecosystem Forum response to July 2024 consultation p. 4.

¹⁷⁰ Federation of Communication Services response to July 2024 consultation p. 3.

¹⁷¹ Ofcom / [X] meeting, 4 February 2025. [X] explained that it believes that its other use case [X] would fall within the definition of the supplier exemption, so no action would be required.

¹⁷² Wireless Logic response to July 2024 consultation, p. 3.

¹⁷³ [X] response to information request, 4 March 2025.

¹⁷⁴ [X] response to information request, 12 February 2025.

- Some others argued for longer than 18 months: this included [redacted] which sought deadlines of the end of 2026 for one of its sub-use cases, and the end of 2027 for another.¹⁷⁵
- c) 3G Telecommunications said that they did not agree with the proposed timeframes for implementation but did not explain why.¹⁷⁶
- d) We received a number of responses on the implementation period from CD operators, but we note that our decisions do not directly impact their operations.

4.184 We did not receive any specific comments from respondents about the implementation timings of our proposed measures other than in relation to the ban on GT leasing, with one exception. Virgin Media O2 said our proposal that the Guidance for number range holders should come into effect immediately on publication of the statement was: “*not inappropriate as it aimed to support the interpretation of existing rules.*”¹⁷⁷

Additional information requests and stakeholder responses

4.185 To help us understand further why some stakeholders said they needed an implementation period of greater than 9 months, we conducted further stakeholder engagement and confirmed information provided using our statutory information gathering powers. We established that:

- a) [redacted] said that 12 months was required to contract, design and implement a solution.¹⁷⁸
- b) [redacted] confirmed that it would need an implementation period of 18 months for the ban on GT leasing to allow sufficient time to migrate its lessee [redacted] to an alternative arrangement which did not rely on GT leasing. It explained that there were four phases of this work and outlined the related timeframe for each, which totalled 18 months. Its key phases of work included: (1) supporting the lessee in moving to a new IP Multimedia Subsystem (IMS) provider, (2) building the lessee’s new hosted service, (3) technical migration, (4) SIM migration.¹⁷⁹
- c) [redacted], a [redacted] lessee, explained that, while some of its services could be migrated to using its own GTs within 9 months, it needed an implementation period until the end of 2027 to complete migration to its own GTs for some of its services. In particular, [redacted] provides services to a fleet of legacy vehicles, as explained in the discussion of IoT services in our impact assessment regarding the ban on GT leasing.

Our assessment

Ban on GT leasing and the ban on third parties creating or using GTs from sub-allocated numbers

4.186 The purpose of an implementation period for the ban on GT leasing, and the ban on third parties creating or using GTs from sub-allocated numbers, is to provide businesses (i.e. lessors, lessees and end users of legitimate mobile services facilitated by GT leasing) that have previously entered into leasing arrangements with sufficient time to migrate to alternative solutions and unwind these legacy arrangements.¹⁸⁰ This helps to mitigate any

¹⁷⁵ [redacted] response to information request, 21 February 2025.

¹⁷⁶ 3G Telecommunications response to the July 2024 consultation, p. 4.

¹⁷⁷ Virgin Media O2 response to the July 2024 consultation, p. 4.

¹⁷⁸ Ofcom / [redacted] email correspondence, February 2025.

¹⁷⁹ [redacted] response to information request, 4 March 2025.

¹⁸⁰ While we are not aware of any operators having created and used GTs from sub-allocated numbers, the implementation period will also allow any such operators to migrate to alternative solutions and unwind any such legacy arrangements.

adverse impact on end users and transition costs for lessors and lessees. However, we also need to balance this against the potential risk of misuse of leased GTs and potential harm to UK / international citizens continuing during this period.

- 4.187 In determining the length of the implementation period, we have considered the consultation responses of UK lessors / lessees that would be impacted by the ban on GT leasing, and responses to subsequent information requests and stakeholder engagement. It is clear that respondents are in different situations depending on the extent to which they rely on existing GT leasing for their operations (either as a lessor or lessee), and the circumstances relating to their transition to alternative arrangements.
- 4.188 Taking all relevant factors into account, we consider it appropriate to extend the implementation period for existing leasing arrangements for the GT leasing ban to a period of 12 months (from 9 months). We believe that this achieves the right balance between meeting our objectives and mitigating any adverse impact on stakeholders. We note that this 12-month implementation period exceeds or meets the stated needs of most UK lessors and lessees.
- 4.189 As an exception, we consider that it is appropriate to allow for an 18-month implementation period for two specific migration journeys away from the use of leased GTs. The two migration journeys relate to:
- a) the 'MVNO migration journey', where GT leasing is being used to provide a thick or full MVNO service and the MVNO is preparing to transfer that service to another mobile operator using that operator's core network elements; and
 - b) the 'In-vehicle migration journey', where GT leasing is being used to provide a thick or full MVNO service to devices embedded in vehicles and the MVNO is preparing to provide those services using its own GTs as signalling addresses for its core network elements.
- 4.190 We consider that this longer period for these two specific migration journeys is justified for two reasons. Firstly, we have considered detailed evidence presented to us on the significant challenges associated with the changes to network functionality associated with these migration journeys which distinguish them from others.¹⁸¹ Secondly, we have no evidence of GT misuse associated with the use of the relevant GTs, so the risk of GT misuse linked to this further 6-month extension to the implementation period is low.
- 4.191 We have similarly decided to extend the implementation period to 12 months for any existing use of GTs that may have already been created from sub-allocated numbers at the date of this statement.

Preventing new GT leasing activity during the implementation period

- 4.192 As explained above, the reason to allow an implementation period is to provide existing lessors and lessees with sufficient time to prepare and migrate to alternative solutions and dissolve legacy arrangements (if necessary), in order to mitigate the costs of complying with our regulatory decisions. Therefore, we would not expect this period to be used by

¹⁸¹ We understand from our meeting with [X] and [X] in March 2025, that [X] could use GT modification as an interim solution, if it needed more time to complete the migration process beyond the 18 months period allowed in this case. These migration journeys are discussed further in Section 5 and defined in detail in the National Telephone Numbering Plan.

any current lessors, or other number range holders that have not previously leased their GTs, to commence new GT leasing arrangements, as this could create a new risk of misuse of signalling with potential harms to UK and international citizens.

- 4.193 As a result, we consider that it is necessary and appropriate – taking account of the significant harms that can occur from even a single instance of GT misuse – to include a “stop-sell” rule. This will prevent number range holders from commencing any new GT leasing arrangements from the date of the publication of this statement. This should have limited adverse impact on number range holders given we are only banning any new GT leasing arrangements that do not currently exist, and we are not aware of any new plans to commence new GT leasing arrangements in the future from UK number range holders. In any case, as we discuss above, number range holders can use alternative arrangements that do not rely on GT leasing to facilitate their use cases.

Preventing new GTs being created and used from sub-allocated numbers

- 4.194 As explained above, we have decided to allow third parties to continue using GTs that may have already been created from sub-allocated numbers at the date of this statement, for a period of 12 months. As the creation and use of GTs from sub-allocated numbers creates a potential loophole for bad actors to exploit, we do not however expect this period to be used by third parties to create or use any new GTs that had not already been created at the date of this statement.
- 4.195 As a result, we also consider it necessary and appropriate to include a “stop-sell” rule banning third parties from creating or using any new GTs from sub-allocated numbers from the date of publication of this statement. This should have limited adverse impact given the same factors discussed above in paragraph 4.193 (and we have no evidence of any third-party operators having created their own GTs from their sub-allocated numbers).

New Non-Provider Conditions and Guidance for number range holders to prevent misuse of GTs

- 4.196 Respondents did not raise any concerns about our proposal for the new Non-Provider Conditions corresponding to existing GCs and the new Guidance for number range holders to prevent misuse of GTs coming into effect immediately on publication of the statement.
- 4.197 Further, the new Guidance is designed to help number range holders comply with their existing obligations in General Conditions B1.6 and B1.8. Therefore, it is in the best interest of number range holders for it to come into effect immediately.
- 4.198 Given these reasons, we have decided that it remains appropriate for both measures to come into effect immediately on publication of this statement.

Our decisions

- 4.199 Taking into account respondents’ views, responses to information requests and stakeholder engagement we have decided:
- a) To extend the implementation period for the ban on existing GT leasing from 9 to 12 months. This means the ban on GT leasing will come into effect on 22 April 2026. However, we have decided that it is appropriate to allow for an 18-month implementation period (until 22 October 2026) for two specific migration journeys away from the use of leased GTs: the ‘MVNO migration journey’ and the ‘In-vehicle migration journey’ (as described above).

- b) To extend the implementation period for the ban on using GTs that may have already been created from sub-allocated numbers at the date of this statement, from 9 to 12 months. This ban will therefore come into effect on 22 April 2026.
 - c) To implement the new Non-Provider Conditions corresponding to existing GCs immediately on publication of this statement.
 - d) The new Guidance for number range holders to prevent misuse of GTs will come into effect immediately on publication of this statement.
- 4.200 In addition, we have decided that it is necessary to prevent (a) number range holders from starting any new GT leasing arrangements; or (b) third parties from creating or using any new GTs from sub-allocated numbers, during the implementation period. This “stop-sell” rule will take effect immediately on publication of this statement.
- 4.201 We discuss the practical implementation of these implementation periods in Section 5.

5. Implementation of our decisions and legal tests

- 5.1 In this section, we explain in more detail how we will implement the decisions we have set out in Section 4. We set out the specific combination of existing and new rules we have decided to rely on to address the harms we have identified. In particular, we are setting a new General Condition, modifying General Condition B1.2(b), setting new Non-Provider Conditions and modifying the Numbering Plan.
- 5.2 We firstly set out the various legal tests we needed to satisfy and our general approach, including our approach to Non-Provider Conditions and later explain why we consider the new rules or changes satisfy the relevant legal tests. We then identify the different enforcement routes available to us in the event of non-compliance with our new and amended rules.

Legal tests

General principles

- 5.3 In deciding to impose the new numbering conditions identified below, we have taken into account our duties and requirements in the Act which we have summarised in Section 2 and set out in more detail in Annex A1. These include:
- a) Our principal duty in section 3(1) of the Act to further the interests of citizens and consumers.
 - b) Our general duty in relation to telephone numbers in section 63(1) of the Act to secure the best use of appropriate numbers and encourage efficiency and innovation for that purpose.
 - c) The requirement in section 3(3)(a) of the Act for all our regulatory activities to be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed.
 - d) Other matters identified in section 3 of the Act as they appear to us to be relevant in the circumstances.
 - e) The six requirements set out in section 4 of the Act.
 - f) The UK Government's Statement of Strategic Priorities (SSP) for telecommunications, management of radio spectrum and postal services in accordance with section 2B of the Act.
 - g) The desirability of promoting economic growth in section 108 of the Deregulation Act 2015.

Test for setting or modifying numbering conditions

- 5.4 Section 58 of the Act identifies the type of general conditions Ofcom can impose in relation to the allocation and adoption of numbers. These include:

- a) restrictions on the adoption of telephone numbers by a communications provider, and on other practices by communications providers in relation to telephone numbers allocated to them;¹⁸² and
 - b) requirements on a communications provider in connection with the adoption by him of telephone numbers.¹⁸³
- 5.5 Section 59 of the Act also explains that Ofcom can impose conditions on persons other than communications providers (Non-Provider Conditions) that relate to:
- a) the allocation of telephone numbers to such persons;
 - b) the transfer of allocations to and from such persons; and
 - c) the use of telephone numbers by such persons.
- 5.6 Section 47(2) of the Act governs the circumstances in which we can set or modify general conditions and Non-Provider Conditions.¹⁸⁴ It states that a condition can be set or modified where the condition or modification is:
- a) not such as to discriminate unduly against particular persons or against a particular description of persons;
 - b) proportionate to what the condition or modification is intended to achieve; and
 - c) in relation to what it is intended to achieve, transparent.
- 5.7 Any modification of a General Condition or Non-Provider Condition must also be objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates.
- 5.8 In accordance with section 48A(3) of the Act, we are also required to publish a notification:
- a) stating that we are proposing to set the relevant numbering conditions;
 - b) setting out the effect of those conditions;
 - c) giving our reasons for making the proposal; and
 - d) specifying the period within which representations may be made to Ofcom about our proposal.
- 5.9 Pursuant to section 48A(3) of the Act, we published notifications relating to our proposed modifications to General Condition B1 and the Non-Providers Conditions as part of our July 2024 consultation.¹⁸⁵

Test for modifying the Numbering Plan

- 5.10 Section 56(1) of the Act requires Ofcom to publish a Numbering Plan and identifies the types of restrictions that can be included in the Numbering Plan as including:
- a) such restrictions as Ofcom consider appropriate on the adoption of numbers available for allocation in accordance with the plan;¹⁸⁶ and
 - b) such restrictions as they consider appropriate on the other uses to which numbers available for allocation in accordance with the plan may be put.¹⁸⁷

¹⁸² Section 58(1)(c) of the Act.

¹⁸³ Section 58(1)(d) of the Act.

¹⁸⁴ See section 59(4) of the Act in relation to Numbering Conditions Binding Non-Providers.

¹⁸⁵ See Annex A6 and A7 of our July 2024 consultation.

¹⁸⁶ Section 56(1)(b) of the Act.

¹⁸⁷ Section 56(1)(c) of the Act.

- 5.11 Section 60 of the Act sets out the legal test that must be met before we can modify the Numbering Plan. It states that the Plan can only be modified where the modification is:
- a) objectively justifiable in relation to the matters to which it relates;
 - b) not such as to discriminate unduly against particular persons or against a particular description of persons;
 - c) proportionate to what the modification is intended to achieve; and
 - d) in relation to what it is intended to achieve, transparent.
- 5.12 In accordance with section 60(3) of the Act, we are also required to publish a notification:
- a) stating that we are proposing to modify the Numbering Plan;
 - b) setting out the effect of our proposed revisions or modifications;
 - c) giving our reasons for making the proposal; and
 - d) specifying the period within which representations may be made to us about our proposal.
- 5.13 Pursuant to section 60(3) of the Act, we published a notification in relation to our proposed new restrictions in the Numbering Plan as part of our July 2024 consultation.
- 5.14 The legal framework in Annex A1 sets out our duties and powers and the relevant legal tests in full.

General approach

Reliance on existing rules where appropriate

- 5.15 In Sections 3 and 4 above, we have considered whether our existing rules were sufficient to address the harm we identified or whether further intervention was justified and proportionate, in line with our duties and the relevant legal tests. We consider the legal tests further below.

Approach to the Non-Provider Conditions

- 5.16 Where we are relying on existing or new General Conditions, we have included, as far as possible, corresponding Non-Provider Conditions in relation to the use of GTs.
- 5.17 This is because we have identified a risk that the use of GTs in specific scenarios may not always constitute the provision of an electronic communications network or service and therefore persons using GTs might not always be considered a communications provider within the scope of General Condition B1. Further detail is explained in Section 3.
- 5.18 We have decided that the new Non-Provider Conditions will apply as we proposed in our consultation. The rules should therefore ensure that all operators who might have access to GTs through their number allocations (regardless of whether or not they may be considered a communications provider within the scope of General Condition B1), are subject to our existing and new rules in relation to the misuse of GTs. Our rules relating to the misuse of GTs therefore apply to any UK operator that may hold +44 numbers, including through sub-allocation by and to range holders, resellers or other operators.
- 5.19 The sub-sections below further explain the Non-Provider Conditions that we have decided to impose. To ensure that our Non-Provider Conditions only apply to the use of telephone

numbers as GTs, we have inserted a new Condition 2.1 which states that: *“This Condition only applies in relation to the use of Telephone Numbers as Global Titles.”*

- 5.20 While the notification that accompanied our July 2024 consultation stated that all the proposed Non-Provider Conditions would enter into force at least nine months from the date of Ofcom's statement, we stated in the July 2024 consultation that “to the extent that our proposed new Numbering Conditions Binding Non-Providers are intended to correspond (as far as possible) with existing obligations in the General Conditions, we are proposing that these conditions are implemented immediately after publication of our statement in the first quarter of 2025.”¹⁸⁸ In accordance with our policy proposal, we have decided that the new Non-Provider Conditions 2.1 - 2.4 (which correspond to General Conditions B1.3, B1.5(a), B1.6 and B1.8), will come into effect immediately at the date of this statement.
- 5.21 For the reasons set out above, we consider the Non-Provider Conditions that we have decided to impose are objectively justified and proportionate. We consider the conditions go no further than is necessary to address the misuse of GTs.
- 5.22 We also consider the Non-Provider Conditions:
- a) do not discriminate unduly against particular persons or against a particular description of persons. This is because they apply equally to all the persons that have been allocated numbers.
 - b) are transparent in relation to what they are intended to achieve. We have explained the basis for deciding to impose these conditions above and the wording of the conditions corresponds to the wording of the current or new General Conditions, as far as possible.
- 5.23 Given the decision to impose the Non-Provider Conditions, we have also updated the definition of “Non-provider Numbering Condition” in the General Conditions to ensure this term covers both the existing and new Non-Provider Conditions. We have updated the definition to:
- “Non-provider Numbering Condition’ means the conditions¹⁸⁹ that apply to persons other than **Communications Providers** made under section 59 of the **Act**, including in relation to **Global Titles** and the use of **Unbundled Tariff Numbers**;*”

Addressing misuse of Global Titles by third parties

- 5.24 As explained in Section 4, we have identified misuse of GTs by third parties that access GTs and have addressed this by banning GT leasing and prohibiting GTs being created or used from sub-allocated numbers.
- 5.25 To implement this decision, we have decided to add a new General Condition B1.5A which requires communications providers to comply with all applicable restrictions relating to GTs as are set out in the Numbering Plan.¹⁹⁰

¹⁸⁸ See paragraph 4.93 of the consultation: [Global Titles and Mobile Network Security](#). We also note that Table 5.1 in the July 2024 consultation contained some inconsistencies on when the proposed Non-Provider Conditions would take effect.

¹⁸⁹ [Non-Provider Condition](#).

¹⁹⁰ For the full provision, please see the Notification at Annex A4.

- 5.26 We have inserted a new condition B1.5A, rather than relying on the current wording in B1.5(a), due to the risk that that the specific use of a GT in a particular scenario may not be considered the provision of an electronic communications network or service (see Section 3 above).
- 5.27 We have inserted new restrictions B3.8.1 and B3.8.2 in the Numbering Plan:
- B3.8.1 reads: *“Only those persons to whom Ofcom has Allocated a Telephone Number shall create a Global Title from such a Telephone Number or use a Global Title created from such a Telephone Number.”*¹⁹¹
- B3.8.2 reads: *“Any person Allocated a Telephone Number shall not authorise the use of that Telephone Number by others for use as a Global Title, except if the person being authorised is: (a) a person in the same group, as defined in section 1261(1) of the Companies Act 2006; or (b) a person supplying services to the person authorising the use, provided that the Telephone Number used as a Global Title is used exclusively to provide that service and for no other purpose.”*
- 5.28 We note that our decision to insert B3.8.2 will affect the application of the current General Condition B1.2(b), which provides that *“a Communications Provider shall not Adopt Telephone Numbers from Part A of the National Telephone Numbering Plan unless... (b) the Communications Provider has been authorised (either directly or indirectly) to Adopt those Telephone Numbers by the person Allocated those Telephone Numbers.”*
- 5.29 While B1.2(b) will remain applicable to the adoption of numbers in general, it will now be subject to our ban on GT leasing in accordance with new General Condition B1.5A. In order to ensure transparency around the scope of our new rules and impact on the application of General Condition B1.2(b), we have decided to make it clear that General Condition B1.2(b) will be subject to the restrictions in the Numbering Plan relating to GTs. We have therefore decided to add *“Subject to General Condition B1.5A”* at the start of General Condition B1.2(b) so that it will read *“a Communications Provider shall not Adopt Telephone Numbers from Part A of the National Telephone Numbering Plan unless... (b) subject to General Condition B1.5A, the Communications Provider has been authorised (either directly or indirectly) to Adopt those Telephone Numbers by the person Allocated those Telephone Numbers.”*
- 5.30 For the reasons set out in Section 4, we consider our decision to be objectively justified and proportionate. In particular, taking into account our duties, we consider the serious extent and nature of actual and potential harm to UK citizens associated with the misuse of GTs – including the fact a single instance or misuse can cause severe and irreparable harm – means the potential impact of a ban (and complementary ban on GTs being created or used from sub-allocated numbers) on different stakeholders, is an appropriate and proportionate solution to meet our objectives. We consider our new condition B1.5A, modified B1.2(b) and restrictions in the Numbering Plan go no further than is necessary to address the misuse of GTs by third parties that access GTs. We have also discussed in Section 4 the various mitigations available including the availability of alternatives and our decision to allow for an extended implementation period before our rules come into effect.

¹⁹¹ As explained in Section 4, we have amended B3.8.1 to make clear that it covers both the creation and use of GTs created from Allocated Numbers.

- 5.31 For the reasons set out in paragraphs 5.15 to 5.22, we have also decided to add a new Condition 2.3 to the Non-Provider Conditions to require persons to comply with all applicable restrictions relating to the GTs as are set out in the Numbering Plan (i.e. restrictions B3.8.1 - B3.8.3). We explain why we consider this condition meets the relevant legal tests in the same paragraphs above.
- 5.32 Taken together, these restrictions should ensure that only operators allocated numbers directly by Ofcom can create and use GTs.
- 5.33 The July 2024 consultation proposed that General Condition B1.5A, modified General Condition B1.2(b), and restrictions B3.8.1 and B3.8.2 in the Numbering Plan would come into force at least nine months from the date of Ofcom's statement following our consultation.
- 5.34 We have decided that it is appropriate for the new restrictions, as set out in B3.8.1 and B3.8.2 of the Numbering Plan, to come into force subject to the implementation period set out in the Numbering Plan (as discussed at paragraph 5.38 below). The new General Condition B1.5A and modified General Condition B1.2(b) will come into force immediately at the date of our statement. However, these are in practice subject to the implementation period set out in the Numbering Plan as discussed at paragraph 5.38 below.
- 5.35 For the same reasons and as explained at paragraph 5.20 above and in Section 4, we have decided that Non-Provider Condition 2.3 will come into effect immediately at the date of this statement.
- 5.36 As explained in Section 4, we have also decided to extend the implementation period to 12 months for existing leasing arrangements before the ban on GT leasing comes into effect. We have decided to make an exception for two specific migration journeys away from existing GT leasing arrangements where we have decided to allow a longer period of 18 months before the ban comes into effect. We have similarly decided to extend the implementation period to 12 months for any existing use of GTs that may have already been created from sub-allocated numbers at the date of this statement.
- 5.37 As explained in Section 4, consistent with the policy set out in the July 2024 consultation, we have decided that the new restrictions B3.8.1 to B3.8.3 in the Numbering Plan prohibit (a) number range holders from starting any new GT leasing arrangements; or (b) third parties from creating or using any new GTs from sub-allocated numbers, from the date of this statement.
- 5.38 To give better effect to these implementation periods, we have added a new restriction B3.8.3 in the Numbering Plan which reads as follows:

Restrictions B3.8.1 and B3.8.2 come into force on 22 April 2025 unless:

- a) as at 22 April 2025, a person is using a Global Title created from a Telephone Number Allocated by Ofcom, in which case the restriction in B3.8.1 comes into force on 22 April 2026 in relation to the use of that Global Title; or
- b) as at 22 April 2025, a person Allocated a Telephone Number had already authorised another person to use one or more of its Telephone Numbers as a Global Title, in which case the restriction in B3.8.2 comes into effect on 22 April 2026 in relation to that authorised person, unless the authorisation relates to a person on a MVNO Migration Journey or an In-vehicle Migration Journey, in which case the restriction in B3.8.2 will come into force on 22 October 2026 in relation to that authorised person.

- 5.39 For the reasons set out in Section 4, we consider our decisions in relation to the implementation period to be objectively justified and proportionate.
- 5.40 We also consider the new General Condition B1.5A, modified B1.2(b) and restrictions B3.8.1 - B3.8.3 in the Numbering Plan:
- a) Do not discriminate unduly against particular persons or against a particular description of persons. This is because they apply equally to all the persons that have been allocated numbers or to all persons where defined circumstances apply. As explained in Section 4, our extended implementation period of 18 months for two specific migration journeys away from GT leasing in B3.8.3 of the Numbering Plan reflects detailed evidence on the significant challenges associated with the changes to network functionality associated with those migration journeys which distinguish them from others.
 - b) Are transparent in relation to what they are intended to achieve. We have explained the basis for these conditions above and consider the wording of the rules to be clear. As far as possible, the wording follows the format of other General Conditions and restrictions in the Numbering Plan and reuses existing definitions.
- 5.41 Our changes to the General Conditions, Non-Provider Conditions and Numbering Plan are found in the Notifications at Annex A2, A3 and A4 accompanying this statement.

Addressing misuse of Global Titles by range holders

- 5.42 As explained in Section 4, we have identified potential misuse of GTs by range holders including malicious signalling that originates directly from number range holders themselves, which may be in connection with the provision of a service to a customer (using a GT as an input).
- 5.43 We would in appropriate circumstances take enforcement action for breaches of General Conditions B1.6 and/or B1.8 in the context of this type of misuse of GTs by range holders. We have therefore decided that we do not need any new rules to address this type of misuse by range holders that are communications providers. We also note that our new General Condition B1.5A and new Non-Provider Conditions relating to GT misuse will affect the application of B1.8 to the extent it will require CPs to ensure they take all reasonably practicable steps to secure their customers comply with the amended General Conditions and Non-provider Numbering Condition when using numbers as Global Titles.
- 5.44 For the reasons set out above, we have decided to add a new Condition 2.4 to the Non-Provider Conditions to correspond to General Conditions B1.6 and B1.8. The condition requires persons using telephone numbers to (a) *secure that such Telephone Numbers are used effectively and efficiently; and (b) take all reasonably practicable steps to secure that its customers ensure the effective and efficient use of such Telephone Numbers.*
- 5.45 We explain why we consider these conditions meets the relevant legal tests in paragraphs 5.15 to 5.22 above. In particular, we note that these rules do not affect providers' ability to offer legitimate mobile services to their customers. To the extent operators within the scope of this condition are not currently taking appropriate steps to prevent misuse when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling, we consider any impact on those operators to be significantly outweighed by the reduction in harm these rules should result in. We therefore consider the new condition to be justified and proportionate.

- 5.46 As explained in Section 4 above, we have also decided to issue guidance on the types of steps operators are expected to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
- 5.47 As explained at paragraph 5.19 to 5.20 above and in Section 4, we have decided that Non-Provider Condition 2.4 will come into effect immediately at the date of this statement.
- 5.48 Our changes to the Numbering Condition Binding Non-Providers are set out in full in the Notification at Annex A3 accompanying this statement.

Addressing the creation and misuse of Global Titles from numbers not allocated for use

- 5.49 As explained in Section 4, we have identified malicious signalling that originates from GTs created from numbers that have not been allocated for use.
- 5.50 We consider that we can rely on B1.3 in the event of the creation and misuse of GTs by communications providers from numbers not allocated for use. We therefore consider our existing rules are sufficient to address this type of misuse by range holders that are communications providers.
- 5.51 For the reasons set out above, we have however decided to add a new Condition 2.2 to the Non-Provider Conditions to correspond to General Condition B1.3 and prohibit the use of telephone numbers not allocated, by operators that may not be considered a communications provider within the scope of General Condition B1. This condition will prohibit persons from using telephone numbers from Part A of the Numbering Plan unless that telephone number has been allocated to a person by Ofcom. Taken together, this new condition and the new restriction in B3.8.1 in the Numbering Plan, will ban the creation and use of GTs from sub-allocated numbers.
- 5.52 We explain why we consider this condition meets the relevant legal tests in paragraphs 5.15 to 5.22 above.
- 5.53 As explained at paragraphs 5.20 above and in Section 4, we have decided that Non-Provider Condition 2.2 will come into effect immediately at the date of this statement.
- 5.54 Our changes to the Numbering Condition Binding Non-Providers are set out in full in the Notification at Annex A3 accompanying this statement.

Enforcement to address misuse of Global Titles

- 5.55 We have a range of powers to take enforcement action for non-compliance with both our existing General Conditions that apply to the use of GTs, as well as the new General Conditions we are imposing to address the harms from GT misuse. These include:
- a) Powers to impose significant financial penalties of up to 10% of annual turnover.¹⁹²
 - b) Powers to direct providers to take steps in order to comply with the relevant condition and/or remedy the consequences of the contravention. This could, for example, include directing a communications provider to (i) take certain action in relation to a GT including to stop using a specific GT; or (ii) compensate persons that have suffered loss

¹⁹² See sections 96A – 98 of the Act. We can impose any penalty we consider to be appropriate and proportionate up to the statutory cap and taking into account Ofcom's [penalty guidelines](#).

- or damage as a result of the non-compliance.¹⁹³ It is the duty of the person to comply with any such direction and that duty is enforceable in civil proceedings by Ofcom.¹⁹⁴
- c) Powers to suspend a communications provider’s entitlement to provide electronic communications networks or electronic communications services, or to make associated facilities available.¹⁹⁵
 - d) Powers to issue a direction under General Condition B4.4 requiring communications providers to block access to certain numbers or communications services on the basis of fraud or misuse.¹⁹⁶
 - e) Powers to withdraw telephone number allocations if any of the conditions in s. 61(1) of the Act are met including when withdrawal is in accordance with General Condition B1.18(d) or (e).
 - i) B1.18(d) gives us the power to withdraw numbers where “the Communications Provider has used a significant proportion of those Telephone Numbers, or has used such Allocation to a significant extent, inconsistently with ... Condition [B1], or to engage in fraud or misuse”. Depending on the nature and degree of harm that may be caused by GT misuse, we may consider a single instance of misuse to constitute using an “Allocation to a significant extent, inconsistently with ... Condition [B1], or to engage in fraud or misuse”.
 - ii) B1.18(e) gives us the power to withdraw numbers where “Ofcom has advised the Communications Provider in writing that a significant proportion of those Telephone Numbers has been used, or that such Allocation has been used to a significant extent, to cause harm or a nuisance, and the Communications Provider has failed to take adequate steps to prevent such harm or nuisance.”
- 5.56 In the event of non-compliance with our Non-Provider Conditions, we have powers under section 59(6) of the Act to take enforcement action via civil proceedings against operators allocated numbers that may not be considered a communications provider within the scope of General Condition B1. We also have the power to withdraw numbers under section 61(4) of the Act.
- 5.57 If we withdraw a +44 number (that had been used as a GT), that number will no longer be allocated to a person meaning operators should not carry traffic related to that GT, even if it does not transit or terminate in the UK. We may take enforcement action under General Condition B1.3 or Non-Provider Condition 2.2 against any UK operator that continues to carry such traffic.
- 5.58 Ofcom also has powers under sections 128 to 130 of the Act to take enforcement action against providers or other persons who persistently misuse an electronic communications network or services including issuing a penalty of up to £2m.¹⁹⁷ Misuse of an electronic communications network or service involves using a network or service in ways which cause or are likely to cause someone else, including consumers, to unnecessarily suffer annoyance, inconvenience or anxiety. Misuse is persistent where it is repeated enough for it to be clear that it represents a pattern of behaviour or practice, or recklessness about

¹⁹³ Section 96A(2)(d) and section 96C(2)(a) of the Act.

¹⁹⁴ Section 96C(5) and (6).

¹⁹⁵ Section 100 of the Act.

¹⁹⁶ See Annex A11 of our Regulatory Enforcement Guidelines for a summary of the relevant enforcement process.

¹⁹⁷ See Ofcom’s [Persistent misuse statement](#).

whether others suffer the relevant kinds of harm. Any enforcement action for Persistent Misuse would take into account Ofcom's Persistent Misuse statement.¹⁹⁸

- 5.59 More generally, we may consider it appropriate to maintain a list of providers found in breach of our rules and/or a list of GTs that should not be used on our website. We intend to continue discussions with GSMA on ways to reduce GT misuse. We may also engage with relevant international regulators linked to the origination, termination or transit of the malicious traffic related to any breaches we find.
- 5.60 Ofcom may decide to pursue more than one of the above options in the particular circumstances of the case, as permitted by the relevant legislation. When deciding whether to take enforcement action and what enforcement action may be the most appropriate, Ofcom will consider all relevant factors.
- 5.61 For example, when deciding whether to open an investigation into a number range holder for breach of General Conditions B1.9 and/or B1.8 relating to misuse of their GTs, and if so the type of action that may be appropriate, we expect to take into account our Guidance for number range holders to prevent misuse of Global Titles into account.
- 5.62 Where applicable, any enforcement action will generally be carried out in line with Ofcom's Regulatory Enforcement Guidelines.¹⁹⁹

¹⁹⁸ [Statement of policy on the persistent misuse of an electronic communications network or electronic communications service.](#)

¹⁹⁹ [Regulatory Enforcement Guidelines for investigations.](#)

Table 5.1: Summary of harms and our decision to address these harms

Harms identified	Relevant existing regulation and/or guidance	Addition regulation and/or guidance, and relevant implementation period.
1. Misuse by third parties		
A) Malicious signalling that originates from third parties that lease their GTs directly from number range holders or sub-lease GTs from lessees	Not directly addressed by existing regulation or guidance.	General Condition B1.5A and B1.2(b), in force on 22 April 2025; Non-Provider Conditions 2.1 and 2.3, in force on 22 April 2025; and Numbering Plan restrictions in B3.8.2 – see B3.8.3 for the implementation period.
B) Malicious signalling that originates from third parties that create their own GTs from sub-allocated numbers	Not directly addressed by existing regulation or guidance.	General Condition B1.5A, in force on 22 April 2025; Non-Provider Conditions 2.1 and 2.3, in force on 22 April 2025; and Numbering Plan restrictions in B3.8.1, see B3.8.3 for the implementation period.
2. Misuse by range holders		
A) Malicious signalling that originates directly from number range holders themselves	General Condition B1.6	Non-Provider Conditions 2.1 and 2.4(a), in force on 22 April 2025.
B) Malicious signalling that originates from number range holders that have failed to take sufficient steps to prevent misuse when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling	General Conditions B1.6 and B1.8	Non-Provider Conditions 2.1 and 2.4(b), in force on 22 April 2025. We have issued guidance relating to General Conditions B1.6 and B1.8 and Non-Provider Condition 2.4(b) setting out the types of steps operators are expected to take when providing a service to a customer (using a GT as an input) that has the potential to generate malicious signalling.
3. Creation and use of GTs from numbers not authorised for use		
	General Condition B1.3	Non-Provider Conditions 2.1 and 2.2, in force on 22 April 2025.

Source: Ofcom

A1 Legal framework

A1.1 In this Annex, we set out our powers and duties that are relevant to the decisions set out in the accompanying statement. Our enforcement powers are set out in section 5 of this statement.

Our general duties

A1.2 The Communications Act 2003 (the Act) places a number of duties on us that we must fulfil when exercising the regulatory powers and functions we have been given.

A1.3 Section 3(1) of the Act states that it shall be our principal duty, in carrying out our functions:

- to further the interests of citizens in relation to communication matters;²⁰⁰ and
- to further the interests of consumers in relevant markets, where appropriate by promoting competition.²⁰¹

A1.4 In performing our duties under section 3(1) of the Act, 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).

A1.5 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 promoting competition in relevant markets;
- the desirability of promoting and facilitating the development and use of effective forms of self-regulation (except in relation to our Online Safety functions);
- the desirability of encouraging investment and innovation in relevant markets;
- the desirability of ensuring the security and availability of public electronic communications networks and public electronic communications services;
- the desirability of ensuring that relevant markets facilitate end-to-end connectivity in the interests of consumers in those markets;
- the vulnerability of children and of others whose circumstances appear to us to put them in need of special protection;
- 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.

²⁰⁰ “Citizens” means all members of the public in the United Kingdom (section 3(14) of the Act).

²⁰¹ “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.

- A1.6 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.
- A1.7 Where it appears to us that any of our general duties conflict with each other in a particular case, we must secure that the conflict is resolved in the manner we think is best in the circumstances (section 3(7) of the Act).
- A1.8 Section 4(2) of the Act requires us to act in accordance with six requirements when carrying out certain functions, such as when setting or modifying conditions and the Numbering Plan, which are in summary:
- to promote competition in the provision of electronic communications services, networks and associated facilities and the supply of directories;
 - to promote the interests of all members of the public in the United Kingdom;
 - to take account of the desirability of Ofcom’s carrying out of its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another (i.e. to be technology neutral);
 - to encourage the provision of network access and service interoperability to such extent as Ofcom considers appropriate for the purposes securing efficiency and sustainable competition; efficient investment and innovation; and the maximum benefit for the persons who are customers of communications providers and of persons who make associated facilities available;
 - to encourage compliance with certain standards in order to facilitate service interoperability, end-to-end connectivity, and secure freedom of choice for the customers of telecoms providers; and
 - to promote connectivity and access to very high capacity networks by members of the public and businesses in the United Kingdom.
- A1.9 We consider that the first, second and third of those requirements are of particular relevance to our decisions in this statement and that no conflict arises in this regard with any of our general duties in section 3 of the Act.
- A1.10 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.²⁰²
- A1.11 Lastly, in accordance with section 108 of the Deregulation Act 2015, we have had regard to the importance of promoting economic growth by exercising our regulatory functions in a way that ensures that regulatory action is taken only when it is needed, and any action taken is proportionate.

²⁰² DCMS, 2019, [Statement of Strategic Priorities for telecommunications, the management of radio spectrum, and postal services](#). We in particular note that in general, the security and resilience of the UK’s telecoms networks is of paramount importance and a strategic priority for the Government.

Our duties in relation to telephone numbers

A1.12 In the carrying out of our functions relating to telephone numbers, it is our duty to:

- a) secure what appears to us to be the best use is made of the numbers that are appropriate for use as telephone numbers; and
- b) encourage efficiency and innovation for that purpose (section 63(1) of the Act).

A1.13 It is also our duty, in carrying out our numbering functions, to secure that there is no undue discrimination by communications providers against other communications providers in relation to the adoption of telephone numbers for purposes connected with the use by one communications provider, or his customers, of an electronic communications network or electronic communications services provided by another (section 63(2) of the Act).

Our powers in relation to numbering conditions

General Conditions

A1.14 Ofcom's power to set general conditions is set out in section 45(2)(a) of the Act. A general condition may be applied generally to every person providing an electronic communications network ('ECN') or electronic communications service ('ECS'), or to every person providing an ECN or ECS of a particular description specified in the condition (section 46(2) of the Act).

A1.15 Pursuant to section 45 of the Act, we are authorised to set certain general conditions, including the following:

- a) General conditions making such provisions as we consider appropriate for the purpose of protecting the interests of end-users of public electronic communications services (section 51(1)(a)).
- b) General conditions in relation to the allocation and adoption of telephone numbers including conditions which:
 - i) regulate the use by a communications provider, for the purpose of providing an ECN or ECS, of telephone numbers not allocated to that provider;
 - ii) impose restrictions on the adoption of telephone numbers by a communications provider, and on other practices by communications providers in relation to telephone numbers allocated to them;
 - iii) impose requirements on a communications provider in connection with the adoption by him of telephone numbers;
 - iv) require communications providers to secure compliance with such rules relating to the use of telephone numbers by their customers as we may set out in general conditions or determine in accordance with provisions made by the general conditions (section 58(1)(b)-(d) and (i) of the Act).

Conditions imposed on non-providers

A1.16 Pursuant to section 59 of the Act, Ofcom also has the power to impose conditions on persons other than communications providers ('non-providers') in relation to the allocation of telephone numbers to those persons, the transfer of allocations to and from those persons, and the use of telephone numbers by those persons. These conditions are referred to as Non-Provider Conditions.

- A1.17 The conditions that may be set include conditions imposing obligations corresponding to any of the obligations that may be imposed on communications providers by General Conditions. These conditions may make provision for, or be in connection with, the allocation of telephone numbers, the transfer of allocations, or the use of telephone numbers.
- A1.18 A person who is not a communications provider, but applies for the allocation of a telephone number, or is allocated such a number, including through sub-allocation, has a duty to comply with any conditions set under section 59 of the Act.

Legal tests for setting and modifying numbering conditions

- A1.19 Section 47(2) of the Act governs the circumstances in which we can set or modify general conditions and Non-Provider Conditions. It states that a condition can be set or modified where the condition or modification is:
- a) not such as to discriminate unduly against particular persons or against a particular description of persons;
 - b) proportionate to what the condition or modification is intended to achieve; and
 - c) in relation to what it is intended to achieve, transparent.
- A1.20 Any modification of a General Condition or Non-Provider Condition must also be objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates.
- A1.21 We are required under section 48A(3) of the Act to publish a notification:
- a) stating that we are proposing to set the relevant conditions;
 - b) setting out the effect of those conditions;
 - c) giving our reasons for making the proposal; and
 - d) specifying the period within which representations may be made to Ofcom about our proposal.
- A1.22 Sections 47 to 49 of the Act apply in relation to the setting of conditions under section 59 relating to non-providers and the modification and revocation of such conditions as they apply in the case of general conditions.²⁰³
- A1.23 We published notifications under section 48A(3) of the Act on 22 July 2024, which accompanied our July 2024 consultation.
- A1.24 In accordance with section 48 of the Act, we have today published notifications modifying General Condition B1 and setting Non-Provider Conditions (see Annexes A2 and A3)

National Telephone Numbering Plan

- A1.25 Pursuant to its duty under section 56 of the Act, Ofcom has published the National Telephone Numbering Plan (the Numbering Plan)²⁰⁴ and this sets out, among other things,

²⁰³ Section 59(4) of the Act

²⁰⁴ Available here: <https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/information-for-industry/numbering/other/national-numbering-plan.pdf>

- a) such restrictions as Ofcom consider appropriate on the adoption of numbers available for allocation in accordance with the Plan;²⁰⁵ and
- b) such restrictions as they consider appropriate on the other uses to which numbers available for allocation in accordance with the Plan may be put.²⁰⁶

Legal test for modifying the Numbering Plan

A1.26 Section 60 of the Act sets out the legal test that must be met before we can modify the Numbering Plan and explains the procedures for doing so. In particular, section 60(2) provides that Ofcom must not revise or otherwise modify the relevant provisions unless they are satisfied that the revision or modification is:

- a) objectively justifiable in relation to the matters to which it relates;
- b) not such as to discriminate unduly against particular persons or against a particular description of persons;
- c) proportionate to what the modification is intended to achieve; and
- d) in relation to what it is intended to achieve, transparent.

A1.27 Section 60(3) further provides that, to revise or modify the provisions, Ofcom must publish a notification:

- a) stating that they are proposing to do so;
- b) specifying the document that they are proposing to revise or modify;
- c) setting out the effect of their proposed revisions or modifications;
- d) giving their reasons for making the proposal; and
- e) specifying the period within which representations may be made to Ofcom about their proposal.

A1.28 Section 60 also provides that Ofcom may give effect, with or without modifications, to a proposal with respect to which they have published a notification only if—

- they have considered every representation about the proposal that is made to them within the period specified in the notification; and
- they have had regard to every international obligation of the United Kingdom (if any) which has been notified to them for the purposes of this paragraph by the Secretary of State.

A1.29 We published a notification pursuant to section 60(3) on 22 July 2024 which accompanied our July 2024 consultation. We have considered every representation made to us and have not been notified by the Secretary of State of any international obligation of the United Kingdom.

²⁰⁵ Section 56(1)(b) of the Act.

²⁰⁶ Section 56(1)(b) of the Act.

A2 Notification to set and modify General Condition B1

Notification of Ofcom's decision to set and modify General Condition B1 relating to the Allocation, Adoption and Use of telephone numbers under section 48(1) of the Act (the Notification)

Background

- A2.1 On 22 July 2024, Ofcom published a notification pursuant to sections 48(1) and 48A(3) of the Act, proposing to set and modify the General Conditions as follows:
- a) insert General Condition B1.5A, as set out in Schedule 1 to that notification;
 - b) modify General Condition B1.2(b), as set out in Schedule 1 to that notification; and
 - c) add new definitions in the General Conditions, as set out in Schedule 2 to that notification.
- A2.2 Ofcom's reasons for making the proposals and the effect of the proposals were set out in the accompanying consultation document.²⁰⁷
- A2.3 Ofcom invited representations about the proposals by 15 October 2024.
- A2.4 A copy of the notification was sent to the Secretary of State in accordance with section 48C(1) of the Act.
- A2.5 By virtue of section 48A(6) and (7) of the Act, Ofcom may give effect to the proposals, 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.
- A2.6 Ofcom received responses to the notification and has considered every such representation made to them in respect of the proposals set out in the notification (and the accompanying consultation document).
- A2.7 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

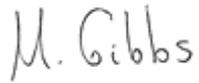
- A2.8 In accordance with section 45 and 48(1) of the Act, and as set out in the Schedules to this Notification, Ofcom has decided to:
- a) set General Condition B1.5A;
 - b) modify General Condition B1.2(b); and

²⁰⁷ Ofcom's consultation on [Global Titles and Mobile Network Security](#)

- c) modify the definitions in the General Conditions.
- A2.9 General Condition B1.5A will have effect by reference to the new restrictions we have decided to insert in the National Telephone Numbering Plan as set out in the notification at Annex A4 of the statement accompanying this Notification.
- A2.10 For the reasons explained in the explanatory statement accompanying this Notification, Ofcom has decided that the provisions in the Schedules to this Notification shall come into force immediately on 22 April 2025.
- A2.11 Ofcom’s reasons for reaching this decision, and the effect of this decision, are set out in Sections 3 - 5 of the explanatory statement accompanying this Notification.
- A2.12 Ofcom considers that it has complied with the requirements of sections 45 to 49C and 58 of the Act, insofar as they are applicable.
- A2.13 In making these proposals, as explained in Section 5 of the statement accompanying this Notification, Ofcom has considered and acted in accordance with its general duties under section 3 of the Act, the six requirements set out in section 4 of the Act and its general duty in relation to telephone numbers under section 63 of the Act. We have also had regard to the UK Government’s Statement of Strategic Priorities (SSP) for telecommunications, management of radio spectrum and postal services in accordance with section 2B of the Act, as well as the desirability of promoting economic growth in section 108 of the Deregulation Act 2015.
- A2.14 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.
- A2.15 In this Notification:
- a) “**Act**” means the Communications Act 2003;
 - b) “**General Conditions of Entitlement**” or “**General Conditions**” means the general conditions set under section 45 of the Act by Ofcom, as amended from time to time;
 - c) “**Ofcom**” means the Office of Communications.
- A2.16 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 and Ofcom’s General Conditions of Entitlement.²⁰⁸
- A2.17 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.
- A2.18 The Schedules to this Notification shall form part of this Notification.

²⁰⁸ [General Conditions of Entitlement - Ofcom](#)

Signed by

A handwritten signature in black ink that reads "M. Gibbs". The letters are cursive and slightly slanted to the right.

Marina Gibbs

Policy Director, Networks and Communications

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

22 April 2025

Schedule 1

We have decided to insert the following after General Condition B1.5:

General Condition	The regulation we have set
B1.5A	The Communications Provider shall comply with all applicable restrictions as are set out in the National Telephone Numbering Plan in relation to the Adoption or use of Telephone Numbers as Global Titles . ²⁰⁹

We have decided to insert the words “subject to General Condition B1.5A” in General Condition B1.2(b) as set out **red** below:

General Condition	The regulation we have modified
B1.2(b)	A Communications Provider shall not Adopt Telephone Numbers from Part A of the National Telephone Numbering Plan unless... (b) subject to General Condition B1.5A , the Communications Provider has been authorised (either directly or indirectly) to Adopt those Telephone Numbers by the person Allocated those Telephone Numbers

Schedule 2

We have decided to insert the following definitions in alphabetical order in the ‘Definitions’ section of the General Conditions:

Term and definition
‘ C7 ’ means to a standard for common channel signalling in Electronic Communications Networks (also known as ‘SS7’)
‘ Global Title ’ means a number created from any Telephone Number as may be used and identified for use as a signalling address, for Signalling Connection Control Part of C7 in an Electronic Communications Network
‘ Signalling Connection Control Part ’ means the signalling protocol of that name that is part of the SS7 common channel signalling standard as defined in ITU-T Recommendations Q.711 to Q.719

²⁰⁹ Set out in B3.8 of the National Telephone Numbering Plan

We decided to amend the following definition in the General Conditions.

Term and definition

'[Non-provider Numbering Condition](#)' means the conditions²¹⁰ that apply to persons other than **Communications Providers** made under section 59 of the **Act**, including in relation to **Global Titles** and the use of **Unbundled Tariff Numbers**'

²¹⁰ [Non-Provider Condition](#)

A3 Notification to set Numbering Conditions Binding Non-Providers

Notification of Ofcom's decision to set Numbering Conditions Binding Non-Providers relating to the Allocation, Adoption and Use of telephone numbers under section 48(1) of the Act (the Notification)

Background

- A3.1 On 22 July 2024, Ofcom published a notification pursuant to sections 48(1) and 48A(3) of the Act, proposing to set and modify the Numbering Conditions Binding Non-Providers²¹¹ as follows:
- i) set Conditions: 2.1, 2.2, 2.3 and 2.4, as set out in Schedule 1 to that notification; and
 - ii) add new definitions, as set out in Schedule 2 to that notification.
- A3.2 Ofcom's reasons for making the proposals and the effect of the proposals were set out in the accompanying consultation document.²¹²
- A3.3 Ofcom invited representations about the proposals by 15 October 2024.
- A3.4 A copy of the notification was sent to the Secretary of State in accordance with section 48C(1) of the Act.
- A3.5 By virtue of section 48A(6) and (7) of the Act, Ofcom may give effect to the proposals, 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.
- A3.6 Ofcom received responses to the notification and has considered every such representation made to them in respect of the proposals set out in the notification (and the accompanying consultation document).
- A3.7 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

- A3.8 In accordance with sections 45 and 48(1) of the Act, and as set out in the Schedules to this Notification, Ofcom has decided to:

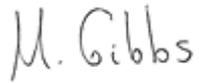
²¹¹ [Numbering Condition Binding Non-Providers: Unofficial Consolidated Version \(ofcom.org.uk\)](https://www.ofcom.gov.uk/consult/condocs/numbering/numbering-condition-binding-non-providers-unofficial-consolidated-version)

²¹² Ofcom's July 2024 consultation on [Global Titles and Mobile Network Security](#)

- i) set the following Numbering Conditions Binding Non-providers: Conditions: 2.1, 2.2, 2.3 and 2.4; and
 - ii) modify the definitions in the Numbering Condition Binding [Non-Providers](#).²¹³
- A3.9 Condition 2.3 has effect by reference to the restrictions we have inserted in the National Telephone Numbering Plan as set out in the notification at Annex A4 of the statement accompanying this Notification.
- A3.10 Ofcom has decided that the provisions in the Schedules to this Notification shall come into force immediately on 22 April 2025.
- A3.11 Ofcom’s reasons for making each of the decisions, and the effect of the decisions, are set out in Sections 3-5 of the explanatory statement accompanying this Notification.
- A3.12 Ofcom considers that these decisions comply with the requirements of sections 45 to 49C and 59 of the Act, insofar as they are applicable.
- A3.13 In making these decisions, as explained in Section 5 of this statement, Ofcom has considered and acted in accordance with its general duties under section 3 of the Act, the six requirements set out in section 4 of the Act and the general duty in relation to telephone numbers under section 63 of the Act. We have also had regard to the UK Government’s Statement of Strategic Priorities (SSP) for telecommunications, management of radio spectrum and postal services in accordance with section 2B of the Act, as well as the desirability of promoting economic growth in section 108 of the Deregulation Act 2015.
- A3.14 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.
- A3.15 In this Notification:
 - a) The “**Act**” means the Communications Act 2003;
 - b) The “**Numbering Condition Binding Non-Providers**” means the conditions set under section 45 of the Act by Ofcom binding non-providers, as amended from time to time;
 - c) “**Ofcom**” means the Office of Communications.
- A3.16 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.
- A3.17 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.
- A3.18 The Schedules to this Notification shall form part of this Notification.

²¹³ [Numbering Condition Binding Non-Providers: Unofficial Consolidated Version \(ofcom.org.uk\)](#)

Signed by

A handwritten signature in black ink that reads "M. Gibbs". The letters are cursive and slightly slanted.

Marina Gibbs

Policy Director, Networks and Communications

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

22 April 2025

Schedule 1

We have decided to insert the following in the Numbering Condition Binding Non-Providers after Condition 1:

	Condition 2: Requirements in connection with the use of telephone numbers as Global Titles
Condition 2.1	This Condition only applies in relation to the use of Telephone Numbers as Global Titles
Condition 2.2	A person may only use a Telephone Number from Part A of the National Telephone Numbering Plan where that Telephone Number has been Allocated to a person, unless the use in question is for the purposes of indicating that the Telephone Number has not been Allocated
Condition 2.3	Any person using a Telephone Number shall comply with all applicable restrictions as are set out in the National Telephone Numbering Plan
Condition 2.4	Where Telephone Numbers are being used by any person, that person shall: <ul style="list-style-type: none"> (a) secure that such Telephone Numbers are used effectively and efficiently; and (b) take all reasonably practicable steps to secure that its customers ensure the effective and efficient use of such Telephone Numbers

Schedule 2

We have decided to insert the following definitions in alphabetical order in the ‘Part 2: Definitions and Interpretation’ section of the “Numbering Condition Binding Non-Providers”:

Term and definition
‘Allocated’ , in relation to a Telephone Number , means allocation by Ofcom
‘C7’ means to a standard for common channel signalling in Electronic Communications Networks (also known as ‘SS7’)
‘Global Title’ means a number created from any Telephone Number as may be used and identified for use as a signalling address, for Signalling Connection Control Part of C7 in an Electronic Communications Network
‘Signalling Connection Control Part’ means the signalling protocol of that name that is part of the SS7 common channel signalling standard as defined in ITU-T Recommendations Q.711 to Q.719

Term and definition

'Telephone Number' means, subject to any order of the Secretary of State pursuant to section 56(7) of the **Act**, any number, including data of any description, that is used (whether or not in connection with telephony) for any one or more of the purposes listed in section 56(5) of the **Act**

A4 Notification to modify the Numbering Plan

Notification of Ofcom's decision to modify the restrictions in the Numbering Plan under section 60(3) of the Act (the Notification).

Background

- A4.1 On 22 July 2024, Ofcom published a notification pursuant to sections 60(3) of the Act, proposing to modify the Numbering Plan²¹⁴ as follows:
- i. insert new restrictions: B3.8.1 and B3.8.2, as set out in Schedule 1 to that notification; and
 - ii. insert new definitions, as set out in Schedule 2 to that notification.
- A4.2 Ofcom's reasons for making the proposals and the effect of the proposals were set out in the accompanying consultation document.²¹⁵
- A4.3 Ofcom invited representations about the proposals by 15 October 2024.
- A4.4 A copy of the notification was sent to the Secretary of State in accordance with section 48C(1) of the Act.
- A4.5 By virtue of section 60(5) of the Act, Ofcom may give effect to the proposals, 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.
- A4.6 Ofcom received responses to the notification and has considered every such representation made to them in respect of the proposals set out in the notification (and the accompanying consultation document).
- A4.7 The Secretary of State did not notify Ofcom of any international obligation of the United Kingdom for the purpose of section 60(5)(b) of the Act.

Decision

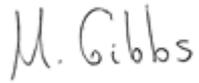
- A4.8 In accordance with sections 60(3) of the Act, and as set out in the Schedules to this Notification, Ofcom has decided to modify the Numbering Plan to:
- i) insert new restrictions: B3.8.1, B3.8.2 and B3.8.3; and
 - ii) insert new definitions.

²¹⁴ [The National Telephone Numbering Plan](#)

²¹⁵ Ofcom's consultation on [Global Titles and Mobile Network Security](#)

- A4.9 The numbering conditions (specifically General Condition B1.5A, and Condition 2.3 of the Numbering Conditions Binding Non-Providers) in the notifications in Annexes A2 and A3, will have effect by reference to the provisions referenced in paragraph A4.8(i) of this Notification.
- A4.10 The provisions in the Schedules to this Notification shall come into force as detailed in B3.8.3 in Schedule 1 to this Notification.
- A4.11 Ofcom's reasons for reaching this decision, and the effect of the decision, are set out in Sections 3 - 5 of the statement document accompanying this Notification.
- A4.12 Ofcom considers that the modifications comply with the requirements in section 60(2) of the Act.
- A4.13 In making these decisions, as explained in section 5 of the statement accompanying this Notification, Ofcom has considered and acted in accordance with its general duties under section 3 of the Act, the six requirements set out in section 4 of the Act and its general duty in relation to telephone numbers under section 63 of the Act. We have also had regard to the UK Government's Statement of Strategic Priorities (SSP) for telecommunications, management of radio spectrum and postal services in accordance with section 2B of the Act, as well as the desirability of promoting economic growth in section 108 of the Deregulation Act 2015.
- A4.14 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.
- A4.15 In this Notification:
- a) "**Act**" means the Communications Act 2003;
 - b) "**Annexes A2 and A3**" means the relevant annexes to the explanatory statement accompanying this Notification;
 - c) "**General Conditions of Entitlement**" or "**General Conditions**" means the general conditions set by Ofcom under section 45 of the Act, as amended from time to time;
 - d) "**Ofcom**" means the Office of Communications;
 - e) "**Numbering Condition Binding Non-Providers**" means the conditions set by Ofcom under section 59 of the Act binding non-providers, as amended from time to time;
 - f) "**Numbering Plan**" means the National Telephone Numbering Plan published by Ofcom from time to time.
- A4.16 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.
- A4.17 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.
- A4.18 The Schedule to this Notification shall form part of this Notification.

Signed by

A handwritten signature in black ink that reads "M. Gibbs". The letters are cursive and slightly slanted to the right.

Marina Gibbs

Policy Director, Networks and Communications

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

22 April 2025

Schedule 1

We have decided to insert the following restrictions in Part B of the Numbering Plan after B3.7

B3.8 Global Titles	
B3.8.1	Only those persons to whom Ofcom has Allocated a Telephone Number shall create a Global Title from such a Telephone Number or use a Global Title created from such a Telephone Number .
B3.8.2	Any person Allocated a Telephone Number shall not authorise the use of that Telephone Number by others for use as a Global Title , except if the person being authorised is: <ul style="list-style-type: none">a) a person in the same group, as defined in section 1261(1) of the Companies Act 2006, orb) a person supplying services to the person authorising the use, provided that the Telephone Number used as a Global Title is used exclusively to provide that service and for no other purpose.
B3.8.3	Restrictions B3.8.1 and B3.8.2 come into force on 22 April 2025 unless: <ul style="list-style-type: none">a) as at 22 April 2025, a person is using a Global Title created from a Telephone Number Allocated by Ofcom, in which case the restriction in B3.8.1 comes into force on 22 April 2026 in relation to the use of that Global Title; orb) as at 22 April 2025, a person Allocated a Telephone Number had already authorised another person to use one or more of its Telephone Numbers as a Global Title, in which case the restriction in B3.8.2 comes into effect on 22 April 2026 in relation to that authorised person, unless the authorisation relates to a person on a MVNO Migration Journey or an In-vehicle Migration Journey, in which case the restriction in B3.8.2 will come into force on 22 October 2026 in relation to that authorised person.

Schedule 2

We have decided to insert the following definitions in alphabetical order in the ‘Definitions and interpretation’ section of the Numbering Plan.

Term and definition
<p>‘C7’ means to a standard for common channel signalling in Electronic Communications Networks (also known as ‘SS7’).</p>
<p>‘Global Title’ means a number created from any Telephone Number as may be used and identified for use as a signalling address, for Signalling Connection Control Part of C7 in an Electronic Communications Network.</p>
<p>‘In-vehicle Migration Journey’ means where a Mobile Virtual Network Operator:</p> <ol style="list-style-type: none">i. as of 22 April 2025, uses one or more Global Titles as signalling addresses for core network elements to provide Mobile Services to devices embedded in vehicles; andii. is preparing to provide those services using its own Global Titles as signalling addresses for its core network elements.
<p>‘Mobile Virtual Network Operator’ means a Mobile Service Provider that provides a Mobile Communications Service using another Communications Provider’s radio access network.</p>
<p>‘MVNO Migration Journey’ means where a Mobile Virtual Network Operator:</p> <ol style="list-style-type: none">i. as of 22 April 2025, uses one or more Global Titles as signalling addresses for core network elements used to provide a Mobile Communications Service; andii. is preparing to transfer those services to facilities provided by another Mobile Service Provider using that Mobile Service Provider’s core network elements.
<p>‘Signalling Connection Control Part’ means the signalling protocol of that name that is part of the SS7 common channel signalling standard as defined in ITU-T Recommendations Q.711 to Q.719.</p>

A5 Analysis of responses to the Lessor Information Request

- A5.1 In this annex we provide a summary of our updated analysis of responses to the Lessor Information Request, covering:
- the incidence of GT leasing using UK mobile numbers; and
 - the control measures applied by lessors.
- A5.2 The updated analysis incorporates additional information supplied by an operator that was originally omitted from the Lessor Information Request and new information provided by another operator.

Global Title leasing using UK mobile numbers

- A5.3 In January 2023, we sent an information request to all operators to whom Ofcom and its predecessors have allocated +44 mobile numbers (including those in the Crown Dependencies), requesting information about their use of mobile numbers and GTs (the January 2023 Information Request). We asked each whether they had formed GTs from their allocation of mobile numbers and whether they leased or otherwise allowed one or more of their GTs to be used by any other company.²¹⁶
- A5.4 37 of the 77 respondents to the January 2023 Information Request stated that they had formed GTs from their allocations of mobile numbers. Of these, seven operators confirmed they leased or otherwise allowed one or more of their GTs to be used by another company.²¹⁷ These operators offer services in the UK and in the Crown Dependencies.
- A5.5 In January 2024 we sent a further information request (the Lessor Information Request) to these seven operators, seeking information about their lessees and the controls to address the risk of malicious signalling (amongst other things).²¹⁸ In the July 2024 Consultation we presented our analysis of the responses to these seven information requests.
- A5.6 In August 2024, another operator [X] informed us that it leased or otherwise allowed some of its GTs to be used by other companies. In September 2024 we sent the Lessor Information Request to this eighth operator (the Additional Lessor).
- A5.7 In February 2025, another operator [X] provided additional information indicating that a company we had previously classified as a lessee was using the operator's GTs solely in

²¹⁶ Mobile Audit 2022 and Global Titles Review: Final Notice Requiring the Provision of Information Under Section 135 of the Communications Act 2003, 25 January 2023. Sent to all 85 communications providers holding mobile numbers allocated by Ofcom excluding those known or thought to have ceased trading. We received 77 responses with the remaining eight communications providers being either dissolved, returning their ranges, or being unable to contact.

²¹⁷ Excluding companies within their corporate group.

²¹⁸ These questions were aimed at improving our understanding on areas such as (i) use cases for GT leasing; (ii) information on GT leasing by the lessor; (iii) the lessor's existing measures to reduce misuse; (iv) application of the GSMA Code; and (v) alternatives for delivering lessor's services without GT leasing and related costs of potential migration to these alternatives.

connection with the provision of services to the operator. We therefore decided to reclassify the lessee as a supplier.²¹⁹

A5.8 In this annex, we present our revised analysis of the responses to the Lessor Information Request, incorporating the new information supplied by these two operators.

A5.9 This new information raised the incidence of GT leasing slightly. Our revised analysis of the responses, summarised in Table A5.1 below, indicated that:

- Lessors have leased GTs to 85 third parties comprising 75 different companies (as seven third parties leased GTs from more than one operator). 81 of these leasing arrangements were with third-party lessees and three were with suppliers who used the GTs solely to support the provision of services to the lessor.²²⁰
- The number of third-party lessees per lessor ranged from 1 - 22. Of the third-party lessees, 74 (i.e. 91%) were customers of the four largest lessors by volume of lessees.

Table A5.1: Global Title leasing by operators allocated mobile numbers by Ofcom and its predecessors

Operator	Number of third-party lessees	Number of supplier lessees
[redacted]	15-25 [redacted]	0-2 [redacted]
[redacted]	15-25 [redacted]	0-2 [redacted]
[redacted]	15-25 [redacted]	0-2 [redacted]
[redacted]	15-25 [redacted]	0-2 [redacted]
[redacted]	1-5 [redacted]	0-2 [redacted]
[redacted]	1-5 [redacted]	0-2 [redacted]
[redacted]	1-5 [redacted]	0-2 [redacted]
[redacted]	1-5 [redacted]	0-2 [redacted]
Total	81	4

Source: Ofcom analysis of responses to the Lessor Information Request²²¹

A5.10 We also required the eight operators to provide us with details of the stated use cases (i.e. the application or service) being provided by the lessees using the GTs.

²¹⁹ Meeting with [redacted] 4 February 2025.

²²⁰ Excluding companies within their corporate group and communications providers providing services to them.

²²¹ [redacted] response dated 16 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024, [redacted] response dated 27 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

A5.11 As shown in Table A5.2 below, these included a range of mobile services (such as MVNO and outbound roaming) and services that utilise information held by mobile operators (such as number authentication). We have provided an overview of these service types in Section 2.

Table A5.2: Summary of use cases for Global Titles leased to third parties

Lessees' use-case	Number of third-party lessees
Outbound Roaming Solution	22
Application to Person SMS (A2P SMS)	22
Authentication Services	18
Mobile virtual network operator (MVNO) (including outbound roaming solution and network extension)	10
Mobile virtual network operator (MVNO) – internet of things (IoT)	1
Mobile virtual network aggregator (MVNA)	1
Penetration Testing	4
Communications Provider as a Service (CPaaS)	1
Least-cost Routing/Number Authentication	1
Not specified	1
Total	81

Source: Ofcom analysis of responses to the Lessor Information Request²²²

A5.12 Although these use cases are ostensibly legitimate services, the Enea Report outlined above associated some of the GTs used by these lessees with malicious signalling.

Control measures applied by Global Title lessors

A5.13 Most lessors have some form of policy on misuse of GTs and risk management of GTs as summarised in Table A5.3 below.

²²² [redacted] responses dated 16 February 2024 and 3 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and 3 May 2024, [redacted] response dated 27 February 2024 and 2 May 2024, [redacted] response dated 13 February 2024 and 1 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February and [redacted] response dated 17 September 2024 to the Lessor Information Request.

Table A5.3: Summary of lessors’ policies on misuse and risk management

Lessor	Due diligence checks undertaken before contracting to provide leased GTs	Initial risk assessment of potential lessees	Ongoing/ periodic risk assessment of lessees	Processes to revoke/ suspend leased GTs in connection with misuse
[redacted]	Yes	Yes	Yes	Yes
[redacted]	Yes	Yes	Yes	Yes
[redacted]	No	No	No	No
[redacted]	Yes	Yes	No	Yes
[redacted]	Yes	Yes	No	Yes
[redacted]	Yes	Yes	Yes	No
[redacted] ²²³	N/A	N/A	Yes	Yes
[redacted]	Yes	Yes	Yes	Yes
Summary	6/7	6/7	5/8	6/8

Source: Ofcom analysis of responses to the Lessor Information Request and the January 2023 Information Request²²⁴

A5.14 There are significant differences between lessors’ policies and procedures:

- One lessor [redacted] said that it did not have established due diligence and risk assessment processes because it had a single MVNO lessee and did not intend to offer leased GTs to others.²²⁵
- Although seven lessors carried out due-diligence and risk-assessment before leasing a GT, the nature of these processes varied significantly. While some make comprehensive enquiries about prospective lessees (typically spanning company checks, directors’ identities and proposed use cases), others appear to make more limited enquiries. One lessor [redacted], the second largest lessor by volume of lessees, said that most of its business was from referrals from trusted third parties and that it only undertook credit-checks and made enquiries about the proposed use case. It did however have an initial trial phase during which it monitored each lessee’s compliance with the stated use case.²²⁶

²²³ Summary has partial information for one lessor [redacted] which was not asked to provide full information on these topics.

²²⁴ [redacted] responses dated 16 February 2024 and 3 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and 3 May 2024, [redacted] response dated 27 February 2024 and 2 May 2024, [redacted] response dated 13 February 2024 and 1 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

²²⁵ [redacted] response dated 16 February 2024 to question 15(a) of the Lessor Information Request.

²²⁶ [redacted] response dated 21 February 2024 to question 15(a) of the Lessor Information Request.

- Five lessors said they conducted ongoing or periodic risk assessment of lessees after leasing GTs. However, three lessors did not have such processes. This included [redacted], the second largest lessor by volume of lessees. It considered that its random checks of lessees' traffic for compliance had proved adequate.

Lessors' technical controls

A5.15 All eight lessors apply some form of technical measures to their leased GTs as summarised in Table A5.4 below.

Table A5.4: Summary of technical measures applied by Global Title lessors to third-party lessees

Lessor	Lessor routing	Traffic routing from lessee to lessor network	Real-time technical controls limiting signaling to message types required for lessee's use case	Monitoring of lessees' signaling traffic	Retention of signaling data
[redacted]	Yes	Private link	Implementing	Yes	No
[redacted]	Yes	Transit	Yes	Yes	No
[redacted]	Yes	Private link	Yes	Yes	No
[redacted]	Yes	Private link	No	No	No
[redacted]	Yes	Private link	Yes	Yes	Yes
[redacted]	Yes	Private link	Yes	Yes	No
[redacted]	Yes	Private link and transit	Yes ²²⁷	No	No
[redacted]	Yes	Private link and transit	Yes	Yes	Yes
Summary	8/8		6/8	6/8	2/8

Source: Ofcom analysis of responses to the Lessor Information Request²²⁸

A5.16 The responses indicated there are significant differences between lessors' technical measures:

²²⁷ [redacted].

²²⁸ [redacted] responses dated 16 February 2024 and 3 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and 3 May 2024, [redacted] response dated 27 February 2024 and 2 May 2024, [redacted] response dated 13 February 2024 and 1 May 2024, [redacted] response dated 13 February 2024 and 3 May 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

- One lessor [X] said that it did not apply any technical measures, other than a requirement to route traffic to its network over a private link, because it had a single MVNO lessee and did not intend to offer leased GTs to others.²²⁹
- Private point-to-point links provide the greatest assurance that signalling traffic is all routed via the lessor. Although five lessors use this method exclusively, three use transit networks to some extent.
- Six lessors applied real-time controls designed to limit the types of signalling messages that lessees can transmit to those relating to their stated use case (e.g. SMS-related signalling messages for an SMS application), however one lessor [X] [X]. One lessor said it was in the process of implementing real-time controls.
- Six lessors proactively monitor lessees' signalling traffic to some extent. One of these lessors [X] appeared to have sophisticated signalling monitoring tools. However, some others provided little evidence that lessees' signalling traffic is closely monitored and most do not retain signalling data for retrospective analysis.²³⁰

Incidence of sub-leasing of GTs

A5.17 We also asked lessors whether any of their leased GTs were sub-leased. Six lessors indicated that none of their GTs were sub-leased. One lessor [X] stated that some of its GTs were sub-leased because it had [X] that leases some of its GTs and that as a result, those GTs were now sub-leased by [X] to its customers. This lessor noted that its contract requires [X] to undertake due diligence measures and to route all traffic via the lessor's network for active policing and control.²³¹

Lessors' implementation of the GSMA Code

A5.18 In the Lessor Information Request, we asked seven lessors whether they had implemented any parts of the GSMA Code. Lessors' responses summarised in Table A5.5 below indicated that none had fully implemented the Code.

²²⁹ [X] response dated 16 February 2024 to the Lessor Information Request.

²³⁰ [X] responses dated 16 February 2024 and 3 May 2024, [X] response dated 13 February 2024 and 3 May 2024, [X] response dated 16 February 2024 and 3 May 2024, [X] response dated 27 February 2024 and 2 May 2024, [X] response dated 13 February 2024 and 1 May 2024, [X] response dated 13 February 2024 and 3 May 2024, [X] response dated 16 February 2024 and [X] response dated 17 September 2024 to the Lessor Information Request.

²³¹ [X] response dated 13 February 2024 to the Lessor Information Request.

Table A5.5: Lessors' stated implementation of the GSMA GT Leasing Code of Conduct

Operator	Stated implementation of the GSMA Code
[redacted]	Compliant with parts of the Code
[redacted]	Not implemented
[redacted]	Not implemented
[redacted]	Implementing
[redacted]	Not implemented
[redacted]	Not implemented
[redacted]	Compliant with parts of the Code

Source: Ofcom analysis of responses to the Lessor Information Request²³²

A5.19 As previously noted, the GSMA Code requires lessors who are full members of the GSMA to include information in their IR.21 submissions to the GSMA Roaming Database listing leased GTs and lessees' contact details. Only one lessor stated that it was compliant with this requirement in its response to the Lessor Information Request.²³³

²³² [redacted] response dated 16 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024, [redacted] response dated 27 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.

²³³ [redacted] response dated 16 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024, [redacted] response dated 27 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 13 February 2024, [redacted] response dated 16 February 2024 and [redacted] response dated 17 September 2024 to the Lessor Information Request.