



An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

COVID 19 Temporary Spectrum Licensing

July 2022 update and end of COVID-19 temporary spectrum licensing on 1 October 2022

Information Notice

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Chapter 1

1 Introduction and summary

1.1 The purpose of this Information Notice is to provide:

- an update on the COVID-19¹ temporary spectrum licensing frameworks, under which temporary spectrum licences have been granted since April 2020, with the current licences due to expire on 1 October 2022;
- an update on relevant matters in relation to any further COVID-19 temporary spectrum licensing beyond 1 October 2022, including information on the Government's COVID-19 measures, network traffic information of the mobile network operators ("MNOs"); and
- ComReg's assessment of whether there is any justification for a further COVID-19 temporary spectrum licensing framework beyond 1 October 2022.

Summary of document

1.2 Based on current information, ComReg is of the view that there is no basis for considering any further COVID-19 temporary spectrum licensing framework beyond 1 October 2022, noting among other things that COVID-19 temporary spectrum licensing frameworks have always been justified on the presence of COVID-19 Government measures. In this regard, ComReg observes that, since March 2022 there are no Government COVID-19 restrictions in Ireland, and there are no indications that this is likely to change.

1.3 In addition, ComReg observes that:

- while MNO data traffic volumes have continued to increase, the recent increases reflect normal expected volume increases. Moreover, the rate of annual growth has declined from a COVID-19 peak of 46% in Q1 2020 to 26% in Q1 2022, which is now below the Year on Year (YoY) traffic growth before the pandemic (i.e., circa 30-35%); and
- for MNO voice traffic volumes, while ComReg's Quarterly Key Data Reports indicate that this increased from a stable pre-COVID-19 level to a 20% increase in Q2 2020 (and maintained an increased level of 15% in Q1 2021

¹ COVID-19 is an illness that can affect your lungs and airways and is caused by a virus called SARS-CoV-2 (2019-nCoV) coronavirus.

compared to pre COVID-19), the more recent figures indicate voice traffic levels returning to below pre-COVID-19 levels.

1.4 Noting the above, ComReg:

- remains of the view that the **current COVID-19 temporary spectrum licensing framework is the final temporary spectrum licensing framework on the basis of the COVID-19 Temporary Situation**, and ComReg reminds licensees that all licences currently issued thereunder will expire on 1 October 2022; and
- encourages the MNOs to prepare their networks for the end of COVID-19 licensing on 1 October 2022 noting, among other things, that the current COVID-19 temporary spectrum licensing framework has provided a reasonable period within which to make such preparations.

Chapter 2

2 COVID-19 Temporary Spectrum Licensing

2.1 This section sets out information on the COVID-19 temporary spectrum licensing frameworks put in place by ComReg, with the consent of the Minister, since April 2020, including information on:

- the first COVID-19 temporary spectrum licensing framework which among other things set out the purpose of the licensing framework;
- the further COVID-19 temporary spectrum licensing frameworks; and
- the current COVID-19 temporary spectrum licensing framework, where ComReg stated its expectation that this would be the final COVID-19 temporary licensing framework.

2.1 The first COVID-19 temporary spectrum licensing framework

2.2 In March 2020 and given the Government measures put in place to address the extraordinary situation presented by COVID-19 and the increased traffic demands placed on wireless networks arising from same (the “COVID-19 Temporary Situation”), and pursuant to a request from the MNOs for temporary spectrum rights², ComReg consulted upon, and subsequently put in place with the consent of the Minister, the first COVID-19 temporary spectrum licensing framework³.

2.3 This licensing framework provided for the temporary assignment of spectrum for an overall period of up to 6 months, from 8 April 2020 to 7 October 2020, by providing additional spectrum rights of use in the 700 MHz and 2.6 GHz Bands, and liberalised spectrum rights of use in the 2.1 GHz Band, as existing licences in that band at that time were licensed for 3G-use only.

2.4 Each of the MNOs (Meteor, Three and Vodafone) subsequently applied for and was

² The three MNOs submitted a common letter requesting temporary spectrum rights on 24 March 2020 (See Annex 3 of Document [20/21](#))

³ The Wireless Telegraphy (Temporary Electronic Communications Services Licences ([S.I. No. 122 of 2020](#))) Regulations 2020 were made on 8 April 2020 with the consent of the Minister for Communications, Climate Action and Environment.

issued COVID-19 temporary spectrum licences for spectrum rights in the 700 MHz and 2.1 GHz bands.

The purpose of COVID-19 temporary spectrum licensing is solely to address the COVID-19 temporary situation and is without prejudice to the MBSA2

2.5 During the consultation process on the first COVID-19 temporary spectrum licensing framework, and subsequent consultations on further COVID-19 temporary spectrum licensing frameworks (see Section 2.2 below), ComReg made clear that the COVID-19 temporary spectrum licensing framework was based on the following two key principles, being it was:

- solely put in place to address the exceptional and extraordinary situation presented by COVID-19, and
- entirely without prejudice to the award of long-term rights of use in these spectrum bands in ComReg’s multi-band spectrum award for assigning long-term rights of use in the 700 MHz, 2.1 GHz, 2.3 GHz and 2.6 GHz bands (the “MBSA2”);

2.6 All respondents to the consultation agreed with these key principles⁴ and these were subsequently incorporated into the Application Declaration Form (see paragraph 4 of Part 6 of the Application Form⁵).

2.7 All three MNOs, as applicants for a COVID-19 temporary licence, accepted these key principles in the Application Declaration Form⁶ when applying for a COVID-19 temporary spectrum licence:

“I confirm that the Applicant is fully aware that the Licences are being made available solely to accommodate the claimed unanticipated spike in demand arising from the extraordinary situation relating to COVID-19, that all Licences granted or renewed under the Regulations will expire on or before 1 October 2022 and that the longer term questions of assignment of spectrum rights of use in the 700MHz Duplex, liberalisation of rights of use in the 2.1 GHz Band and assignment of new rights of use in that band will be determined through such an award process as ComReg shall determine to be appropriate.”

COVID-19 temporary spectrum licensing is not intended for operators

⁴ See paragraphs 3.3 to 3.6 of ComReg Document [20/27](#).

⁵ See ComReg Document [20/27a](#)

⁶ See paragraph 4 of Part 6 of the Application Form in ComReg Document [20/27a](#).

to make significant network investments

- 2.8 In establishing the COVID-19 temporary spectrum licensing framework, ComReg also made it clear that these licences were not intended for operators to make significant network investments or make deployments that were not previously planned. This reflected the exceptional and temporary nature of the framework.
- 2.9 Instead, the purpose was to facilitate operators that could readily utilise the 700 MHz, 2.1 GHz and 2.6 GHz bands using existing infrastructure to meet the demand of consumers during the COVID-19 Temporary Situation. ComReg also recognised that operators should, over time, have some flexibility to install or redeploy equipment and to continue with their existing network upgrade plans. Paragraph 3.15 of Document 20/21 states:

“ComReg would reiterate that the underlying intention of its proposal is to facilitate operators that can readily utilise the 700 MHz Duplex, 2.1 GHz and/or 2.6 GHz Bands to meet the demand of consumers during the Temporary Situation using existing infrastructure. These are clearly licences of a limited duration so it is not the intention that an operator, using these temporary licences, would make significant network investments, or alternatively obtains a temporary licence but is not in a position to readily use it to assist in providing additional capacity or coverage in the present extraordinary circumstances. Therefore, operators seeking a licence are reminded of the temporary nature of these licences and that the radio spectrum is a scarce resource, particularly during the present crisis, and should only apply for the rights of use that they can readily use and be able to readily demonstrate this ability to ComReg.”

2.2 Further COVID-19 temporary spectrum licensing frameworks

- 2.10 Given that government measures to address COVID-19 remained in place until March 2022, these measures continued to have some impact on the MNO's traffic, and pursuant to requests from mobile network operators to ComReg for further temporary spectrum licensing⁷, ComReg consulted upon and put in place, with the consent of the Minister, four further COVID-19 temporary spectrum licensing frameworks, being:

⁷ The three MNOs submitted a common letter requesting temporary spectrum rights on 2 September 2020 (see Annex 3 of Document [20/86R](#)) on 9 & 11 February 2021 (see Annex 3 of Document [21/16](#)), on 21 and 22 July 2021 (see Annex 3 of Document [21/87](#)) and on 4 February 2022 (see Annex 3 of Document [22/17](#))

- the Further Temporary ECS licensing framework (from 8 October 2020 to 1 April 2020)⁸;
- the Further Temporary ECS (No. 2) licensing framework (from 2 April 2021 to 1 October 2021)⁹;
- the Further Temporary ECS (No. 3) licensing framework (from 2 October 2021 to 1 April 2022)¹⁰; and
- the Further Temporary ECS (No. 4) licensing framework (from 2 April 2022 to 1 October 2022)¹¹ (the “Current COVID-19 Temporary Spectrum Licensing Framework”)

- 2.11 For each of these further COVID-19 temporary spectrum licensing frameworks, ComReg continually made it clear that the purpose of the COVID-19 temporary spectrum licensing framework was solely to address the COVID-19 Temporary Situation and that it was entirely without prejudice to the MBSA2.
- 2.12 Again, these principles were accepted and acknowledged by the MNOs in their requests to ComReg for further temporary spectrum licensing.¹²
- 2.13 Further, similar to the first COVID-19 temporary spectrum licensing framework, these principles were incorporated into the Application Declaration Form (see paragraph 4 of Part 6 of the Application Form¹³) of the further COVID-19 temporary spectrum licensing frameworks, and all three MNOs, as applicants for a COVID-19 temporary spectrum licence, accepted these key principles in the Application Declaration Form when applying for each COVID-19 temporary spectrum licence.
- 2.14 For each of these further COVID-19 licensing frameworks, all three MNOs applied

⁸ The Wireless Telegraphy (Further Temporary Electronic Communications Services Licences) Regulations 2020 ([S.I. No. 407 of 2020](#)) were made on 2 October 2020, with the consent of the Minister for the Environment, Climate and Communications.

⁹ The Wireless Telegraphy (Further Temporary Electronic Communications Services Licences) (No.2) Regulations 2021 ([S.I. No. 137 of 2021](#)) were made on 22 March 2021, with the consent of the Minister for the Environment, Climate and Communications.

¹⁰ The Wireless Telegraphy (Further Temporary Electronic Communications Services Licences) (No.3) Regulations 2021 ([S.I. No. 501 of 2021](#)) were made on 30 September 2021, with the consent of the Minister for the Environment, Climate and Communications.

¹¹ Given effect by the Wireless Telegraphy (Further Temporary Electronic Communications Services Licences) (No.4) Regulations 2022 ([S.I. No. 138 of 2022](#)) were made on 28 March 2022, with the consent of the Minister for the Environment, Climate and Communications..

¹² This text was included in the MNOs request to ComReg on 2 September 2020 (See Annex 3 of Document [20/86R](#)), on 9 & 11 February 2021 (see Annex 3 of Document [21/16](#)) on 21 and 22 July 2021 (see Annex 3 of Document [21/87](#)) and on 4 February 2022 (see Annex 3 of Document [22/17](#))

¹³ See paragraph 4 of Part 6 of the Application Form in ComReg Documents [20/88a](#), [21/24a](#), [21/96a](#) and [22/22a](#).

for and were granted COVID-19 temporary licences for spectrum rights in the 700 MHz and 2.1 GHz bands¹⁴.

- 2.15 The current COVID-19 temporary licences were issued on 16 June 2022 and have an **expiry date of 1 October 2022**.
- 2.16 As outlined by the MNOs' submissions to ComReg's consultations and their most recent renewal applications¹⁵, the temporary spectrum rights have been used to provide additional network capacity to support the provision of voice and data services to consumers to address the increased traffic demands arising from the COVID-19 measures.

2.3 Current COVID-19 Temporary Spectrum Licensing Framework

- 2.17 In March 2022, the Current COVID-19 Temporary Spectrum Licensing Framework was consulted upon¹⁶ and subsequently put in place.
- 2.18 In that consultation process, and while ComReg observed that the COVID-19 Temporary Situation would appear to have ended with the removal of most Government COVID-19 measures from 28 February 2022¹⁷, and noting that COVID-19 temporary spectrum licences had always been justified on the basis of prevailing Government COVID-19 measures¹⁸, ComReg observed that a further temporary licensing framework for up to six months would provide a reasonable time period to account for:
- *“the lag effect between the withdrawal of COVID-19 measures and the emergence of stable traffic patterns (factor (ii) in paragraph 3.31 above); and*

¹⁴ Since July 2021, neither Three or Vodafone has requested or been assigned temporary 2.1 GHz spectrum rights, as each applied for and was granted a 2.1 GHz Band Liberalised Use Licence in June 2021. This removed the need for temporary rights in the 2.1 GHz band for both operators.

¹⁵ For example, see:

- Section 3.2 of ComReg Document [22/17](#) which summarises the MNOs' submissions in support of a Further Temporary ECS (No.3) licensing framework; and
- Annex 1 of this document which sets out the information received from the MNOs in support of a renewal licence under the Current COVID-19 Temporary Spectrum Licensing Framework.

¹⁶ See ComReg Documents [22/02](#), [22/17](#) and [22/22](#).

¹⁷ See paragraphs 3.30 of ComReg Document [22/17](#)

¹⁸ Paragraph 3.34 of Document [22/17](#)

- *the MNOs' need to undertake transition activities in advance of the cessation of any temporary spectrum rights (factor (iii) in paragraph 3.31 above)...”¹⁹.*

End of COVID-19 temporary spectrum licensing framework

- 2.19 Based on the current information, including importantly the removal of most COVID-19 Government restrictions on 28 February 2022, ComReg made it clear in its consultation that it expected the Current COVID-19 Temporary Spectrum Licensing Framework would be **the last such licensing framework on the basis of the COVID-19 Temporary Situation.**²⁰
- 2.20 Noting this expectation, ComReg emphasised that the **MNOs now begin to make transition plans** and take actions in advance of the end of the COVID-19 temporary spectrum licences.²¹

¹⁹ Paragraph 3.34 of Document [22/17](#)

²⁰ See paragraphs 1.2, 1.5, 4.30 of Document [22/17](#) and paragraphs 1.2, and 3.27 of Document [22/22](#)

²¹ See paragraphs 1.4, 3.34, 4.26 of Document [22/17](#), and paragraphs 1.2, 3.9 and 3.27 of Document [22/22](#)

Chapter 3

3 Updated information

3.1 This section sets out updated information on:

- Government's COVID-19 measures; and
- Network traffic since the adoption of COVID-19 measures

3.1 Government's COVID-19 measures

3.2 Since March 2020, the Government has set out five separate plans²² to tackle COVID-19 and has implemented a suite of measures²³ at different points during this time, including requiring:

- that people stay at home, except for work, education or other essential reasons, or to exercise within 5 kilometres of your home;
- that people work from home, unless your work is an essential service that cannot be done from home;
- that people do not visit other households except for essential purposes; and
- schools, colleges and childcare facilities to be temporarily closed.

3.3 The extent of the measures adopted has varied over time, depending on factors such as the prevailing public health advice for tackling COVID-19.

3.4 As noted in ComReg's consultation process on the Current COVID-19 Temporary

²² These plans demonstrate the evolving response of the Government to tackling COVID-19 and are:

- Ireland's National Action Plan;
- the Roadmap to Reopening Society and Business;
- Resilience & Recovery 2020-21 - Plan for Living with COVID-19;
- Resilience and Recovery 2021- The Path Ahead; and
- Reframing the challenge - Continuing our recovery and reconnecting.

²³ On 20 March 2020, the [Health \(Preservation and Protection and Other Emergency Measures in the Public Interest\) Act 2020 \(Act 1 of 2020\)](#) was signed into law. This was extended until at least 9 November 2021 by the [Health and Criminal Justice \(Covid-19\) \(Amendment\) Act 2021 \(Act 12 of 2021\)](#) and the Dáil has voted to extend these powers until 9 February 2022. The Act gives the Minister for Health the power to make regulations to introduce measures to slow down the spread of the virus. See Citizens Information, "Public Health Measures for COVID-19", accessed on 18 January 2022, available at <https://www.citizensinformation.ie/>

Spectrum Licensing Framework²⁴:

- in January and February of 2022, the Government removed most COVID-19 restrictions in Ireland, albeit that the return to work in offices from 22 January 2022 is proceeding on a phased basis; and
- from 6 March 2022, the COVID-19 restrictions for travelling to Ireland were removed.

3.5 Since then, no COVID-19 measures have been reintroduced by the Government and, as noted on Ireland's Citizen's information website²⁵ currently there are no COVID-19 restrictions in Ireland and there are no indications that this is likely to change.

3.2 Network traffic since the adoption of COVID-19 measures

3.6 This section presents updated information on the network traffic demands being placed on MNOs at a national level in light of the COVID-19 Temporary Situation and is based on:

- I. The weekly network performance reports provided by network operators to ComReg's Network Operations Unit; and
- II. ComReg's Quarterly Key Data Reports and the Data Portal where ComReg reports on the key trends and developments in the Irish electronic communications market²⁶.

I. Network Performance Reports

3.7 The data provided by network operators to ComReg's Network Operations Unit, illustrated in Figure 1 below, presents the aggregate monthly change in voice and data traffic volumes on the mobile networks from February 2020 to June 2022, compared to a pre-COVID-19 base level (i.e., February 2020)

²⁴ See ComReg Documents [22/02](#), [22/17](#) and [22/22](#).

²⁵ [COVID-19 restrictions in Ireland \(citizensinformation.ie\) \(updated on 1 April 2022\)](#)

²⁶ Information from the ComReg Quarterly Key Data Reports allows for comparison with time periods before the introduction of COVID-19 measures and therefore provides relevant information on the extent to which mobile voice and data increases are natural or may have been influenced by the introduction of COVID-19 measures.

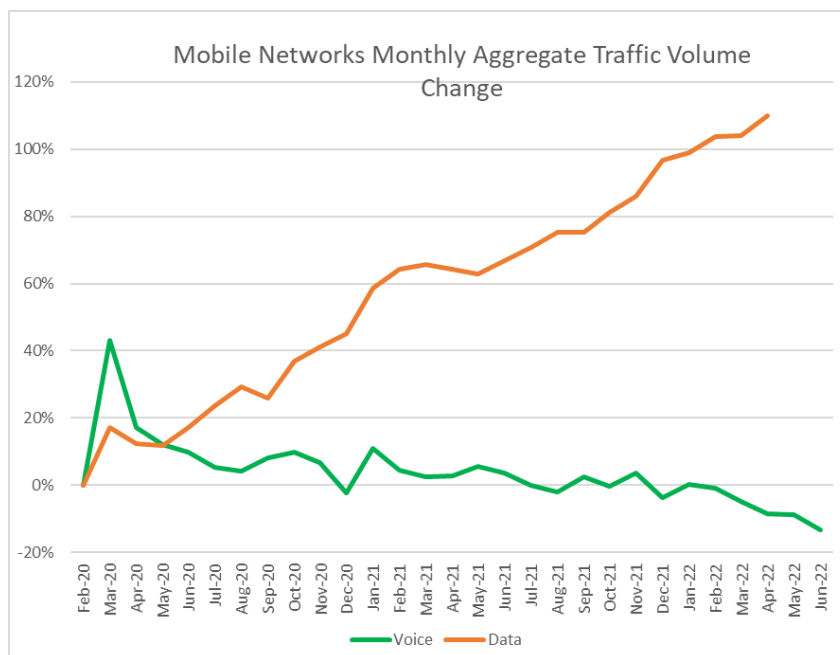


Figure 1: Mobile Networks Monthly Aggregate Traffic Volume change^{27,28}

3.8 From this information ComReg observes:

- For **mobile voice traffic volumes**, in March 2020 this increased sharply by 43% compared to the pre-COVID-19 base level, but since then, it has declined to below pre-COVID-19 levels; and
- For **mobile data traffic volumes**, in March 2020 this increased sharply with a 17% increase compared to the pre-COVID-19 base level, and since then, this has generally increased at a stable rate.

II Updated ComReg Quarterly Key Data

3.9 Information from the data sets²⁹ informing ComReg's Quarterly Key Data Reports, including its most recent data for Q1 2022³⁰ is presented as follows:

- Figure 2 provides information on mobile data expressed in terms of volumes and annual % growth; and

²⁷ Note that these are total traffic volume changes against a base level immediately before the COVID-19 government restrictions were put in place in March 2020.

²⁸ Mobile data information is not included for a number of weeks in April, May and June 2022 given issues with the accuracy of the data submitted by one MNO during this period.

²⁹ See <https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/>

³⁰ ComReg Document [22/45](https://www.comreg.ie/), "Quarterly Key Data Report – Q1 2022", published 9 June 2022, available at <https://www.comreg.ie/>

- Figure 3 provides information on mobile voice expressed in terms of volume and annual % growth.

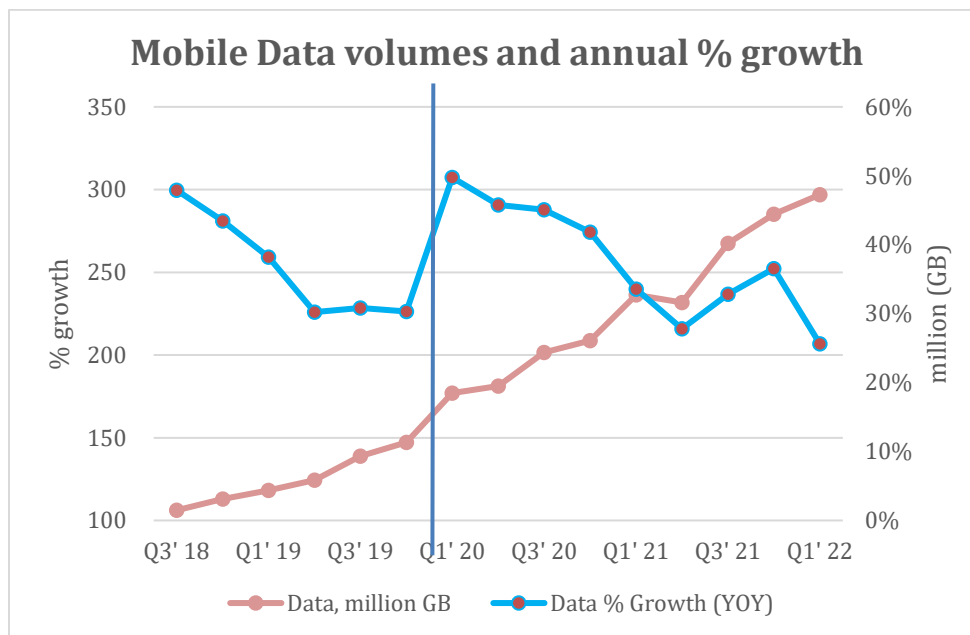


Figure 2: Mobile data volumes and annual percentage growth

3.10 Figure 2 shows the growth in mobile data for each quarter in terms of volume and the rate of growth over the past four years and allows for comparison of mobile data growth evolution before and after the introduction of COVID-19 measures. In summary:

- prior to the introduction of COVID-19 measures at the beginning of 2020:
 - mobile data volumes (i.e., GBs uploaded or downloaded) were already increasing significantly; and
 - annual percentage growth rates had stabilised at circa 30 - 35% for the previous three quarters.
- each of the four quarters in 2020 show growth rates above pre-COVID-19 levels, with a peak growth rate during COVID-19 of 47% in Q1 2020; and
- rates of growth since that peak have steadily declined in subsequent quarters, such that annual percentage data growth rates have recently been lower than, the 30-35% growth levels pre-COVID-19, with for example 26% growth levels for Q1 2022.

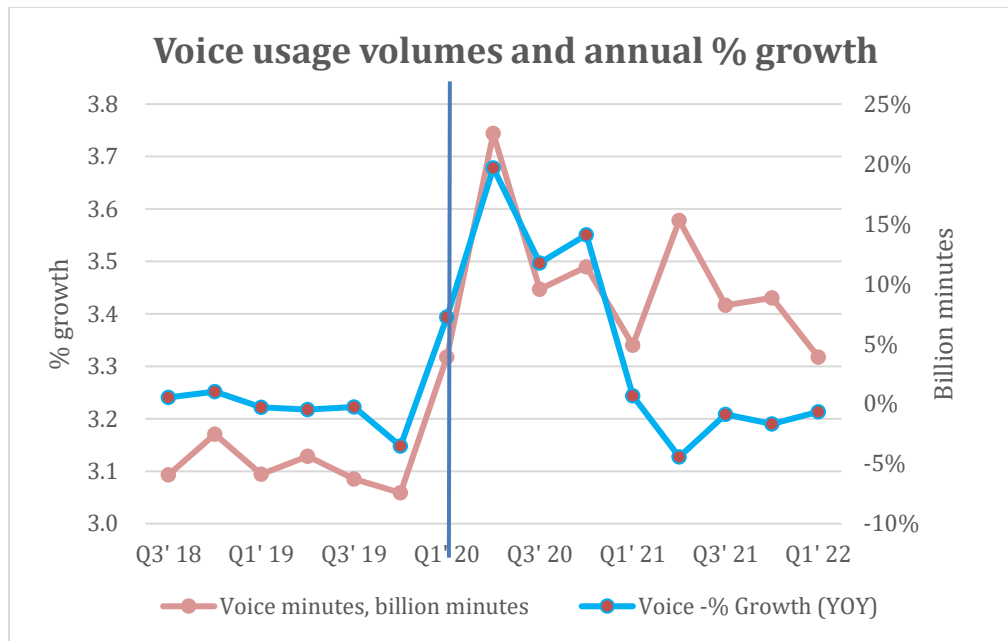


Figure 3: Mobile voice minutes growth

3.11 Figure 3 shows the growth in mobile voice minutes for each quarter in terms of volume and rate of growth over the past four years and allows for comparison of mobile voice growth evolution before and after the introduction of COVID-19 measures. In summary:

- in the lead up to COVID-19 the volume of mobile voice minutes on a quarterly basis was around 3.2 billion minutes (aside from some seasonable variability) and there was close to a zero rate of growth for the period (indeed it has been close to zero for the previous 5 years);
- each of the four quarters in 2020 show growth rates and volume of mobile voice minutes above pre-COVID-19 levels, with peak increases during COVID-19 of around 20% or 3.7 billion minutes in Q2 2020; and
- since that peak in Q2 2020, volumes and the rate of growth have declined, although mobile voice volumes remained above the pre-COVID levels of circa 3.2 billion minutes.

Chapter 4

4 ComReg's assessment - end of COVID-19 temporary spectrum licensing

- 4.1 Based on current information, ComReg is of the view that there is no basis for considering any further COVID-19 temporary spectrum licensing framework beyond 1 October 2022, noting among other things that COVID-19 temporary licensing frameworks have always been justified by the presence of COVID-19 Government measures. In this regard, ComReg observes that, since March 2022, there are no Government COVID-19 restrictions in Ireland, and there are no indications that this is likely to change.
- 4.2 Noting the above, ComReg:
- remains of the view that the **Current COVID-19 Temporary Spectrum Licensing Framework is the final temporary spectrum licensing framework on the basis of the COVID-19 Temporary Situation**, and ComReg reminds licensees that all licences issued thereunder will expire on 1 October 2022; and
 - encourages the MNOs to prepare their networks for the end of COVID-19 licensing on 1 October 2022, noting among other things that the Current COVID-19 Temporary Spectrum Licensing Framework has provided a reasonable period within which to make such preparations.

Annex 1: Non-confidential information from MNOs in their renewal applications for a Further COVID-19 Temporary Licence (No.4)

1 Eircom Limited and Meteor Mobile Communication Limited (trading as ‘eir’ and ‘open eir’), collectively referred to as ‘eir Group’ or ‘eir’



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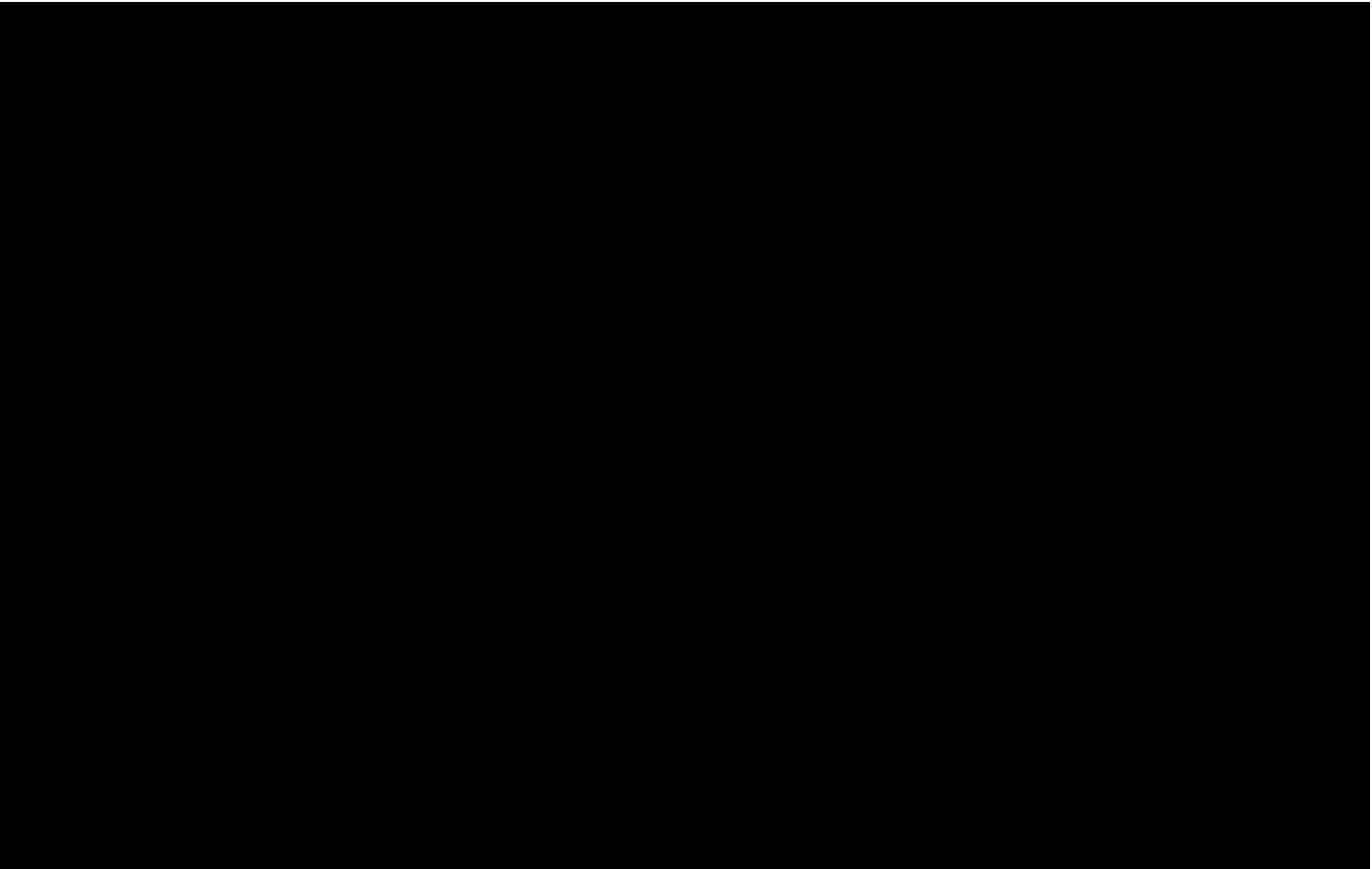
Meteor Mobile Communications Ltd (MMC) material in support of request to extend the Covid-19 Temporary ECS Licensing regime

1. Network traffic / capacity / performance information

(i) Information regarding the traffic (voice and data), capacity / performance of the network considering the extraordinary situation arising from COVID-19. In particular, the changes in network traffic (voice and data), capacity / performance since COVID-19 until now.

MMC: We have seen very significant Voice and Data Traffic growth since the emergence of this extraordinary situation arising from Covid-19.

Data traffic growth in particular has continued since the initial national lockdown and sustained such growth throughout 2020 and 2021. While the data traffic in the network has been growing over recent years however, the trend line shown in Figure 1 below indicates an inflection point in the 2020 data traffic growth starting in March coinciding with the commencement of Covid 19 movement restrictions which have continued with some variation in the restrictive measures. It should also be noted with the continuation of home based working the locations of the traffic has also changed and so the traffic profile per cell and site has altered as a result of Covid 19. . . The step change triggered by Covid in 2020 has not receded and while the trend line for 2021 is not quite as steep as 2020's that of 2022 seems to be matching 2020 again.



eir's mobile voice traffic has been flat prior to Covid but in March 2020 a step change occurred due to the first lockdown. Figure 2 below shows clearly that voice traffic is still above pre-Covid 19 levels and the 2022 traffic volumes are largely in line with the additional voice traffic attributed to Covid in 2020.

(ii) information on the expected traffic demand and network capacity beyond 1 July 2022.

MMC: Notwithstanding the slow adoption of the return to office the last lockdown was eased and the increased mobility of the population, the traffic volumes carried in the eir network are still trending as they were during the early Covid era in 2020. Therefore, eir expects data traffic to continue on the same growth trajectory considering, albeit the Monthly YoY growth figure for data carried so far in 2022 is less than 2020 and 2021 values. The growth rate in data traffic and step change in voice traffic volumes are not returning to pre Covid values and eir sees no indication they will.

(iii) observations of how much of the changes in traffic and capacity is due to forecasted annual changes that would be expected on a network in the normal course (accounting for seasonal changes and projected market developments in the absence of COVID-19) and those that can reasonably be considered to be directly related to Government COVID-19 measures.

MMC: We have provided voice and data trends for the last four years, the very significant growth in 2020 is very evident versus the prior year growth trajectory as noted in response (i) above and 2021 figures following slightly behind 2020 but well above pre Covid growth rates. Monthly YoY data traffic growth to date during 2022 is averaging **✂ [REDACTED] ✂** as compared with **✂ [REDACTED] ✂** in 2020/2021. Voice traffic in 2022 continues to show the presence of the step increase seen post Covid across 2020. Notwithstanding the reduction in the monthly YoY growth value the rate of growth so far in 2022 is still surpassing the rate seen pre Covid.

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2. Ability to make use of existing temporary spectrum assignments in any further Licence – Sites and transmitters

(i) information regarding the number, locations and deployment dates of sites/transmitters per spectrum band that have actually been used to date using temporary ECS rights of use, indicating the terrestrial system(s) (e.g. LTE) supported; and

MMC: Please see attached file [REDACTED] which details sites activated to date.

eir extensively utilises the Temporary ECS licences deploying the 700MHz band as an additional capacity layer with over [REDACTED] cells live and despite the significant growth of data traffic continues to improve data throughputs on these sites.

eir is also activating 2100MHz for LTE with over [REDACTED] LTE cells now live on this band. eir continues to balance the support of voice and data service requirements across our network.

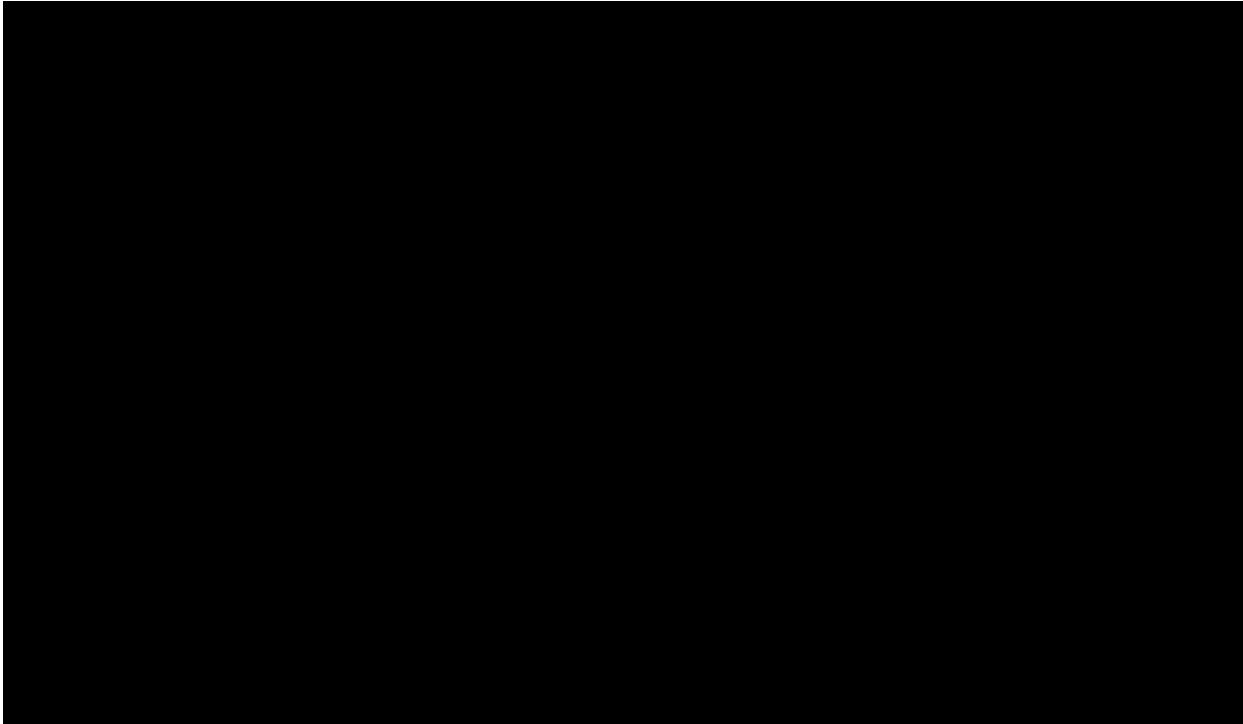
(ii) Information on the number of sites/transmitters per band that would be expected to be used over the duration of any further Licence indicating the terrestrial system(s) (e.g. LTE) being supported. Note, where a Licensee has applied for and been granted a 2.1 GHz Band Liberalised Use licence, information for the 2.1 GHz band should not be included.





MMC: Over the lifetime of this proposed extension eir has activated 700MHz/2100MHz on a total of [REDACTED] sites with respectively to date with the expectation figures will rise to [REDACTED] respectively by end 2022.

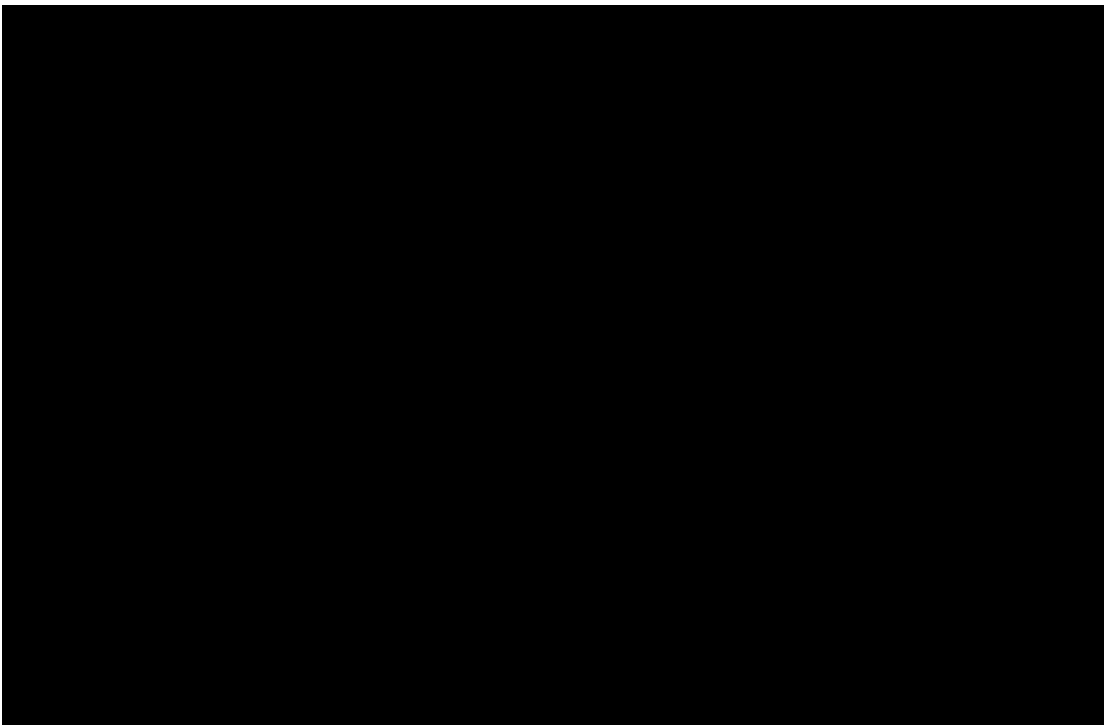
3. How temporary rights have assisted with the provision of ECS in the State

- (i) network capacity/performance constraints to-date. Please provide:
- a. information on the percentage of network traffic (voice and data) carried by temporary spectrum rights for the 700 MHz band, and for the 2.1 GHz bands;

MMC: It has already been shown above how the total traffic on the network has grown since Covid. It is also worth noting the step change in the traffic per subscriber along with the increased rate of growth that has occurred since Covid-19 arrived. This is seen in Figure 3 below where the before pre/post Covid trend lines are noticeably different. The addition of LTE700 has helped to accommodate this traffic growth. The migration of UMTS2100 to LTE2100 has also improved the customer experience through increased carrier aggregation capability while allowing UMTS2100 data move to LTE and load sharing with LTE1800. The availability of ECS via the Temporary License Scheme has assisted in the accommodation of this traffic growth on the network.



As illustrated  of total data traffic has been supported by the 700MHz and 2100MHz bands respectively. As a further breakdown , the 700MHz band has carries  of the low band traffic while the 2100MHz band carries  In the case of Voice services the LTE700 and LTE2100 bands carry  respectively of the total network voice traffic. eir anticipates a continuation of LTE700 and LTE2100 activation under an extended temporary licence to assist manage continued data traffic growth in the coming months.



(b) information highlighting trends where the network capacity/network performance improvements are correlated to use of temporary ECS rights of use. For example, when temporary ECS rights of use were brought into use the network / capacity improvements observed at these times.

It can be seen from Figure 4 above the 700/2100MHz bands have contributed enormously to the carrying of traffic on the eir network where these bands load share with the 800/1800 bands respectively and also contribute to customer experience through reduced PRB utilisation on the 800/1800 bands and carrier aggregation combinations.

✂ [REDACTED]

[REDACTED]

✂ [REDACTED]

(ii) Information on how temporary rights may materially assist over the duration of any further Licence, noting that where a Licensee has applied for and been granted a 2.1 GHz Band Liberalised Use licence, information on the 2.1 GHz band should not be included.

MMC: The temporary rights will continue to allow mobile network operators to make available additional capacity to meet the increased demand for mobile network services, particularly data, allowing citizens to engage socially

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and economically. eir has activated VoLTE to complement our existing Voice over WiFi service, thus enabling the refarming of some 2100Mhz for LTE. This further enhances capacity availability on an extensive base of network sites. It is difficult to predict where and when demand will shift. Having the licences available nationally allows contingent capacity to be made available which can help absorb the impacts.

4. Managing the risks to the provision and quality of existing ECS given the use of the temporary spectrum rights

Information regarding the management of risks to the provision and quality of existing ECS and the measures taken to date by the MNO. For example, the key measures taken on foot of Annex 4 of Document 20/27 - 700 MHz Coordination procedures.

MMC: eir continues to co-ordinate extensively with all other operators in planning the activation of 700Mhz, in particular eir has a trusted engagement with Virgin Media on site activation to enable their testing pre/post activation and mitigate the risk of interference to their CATV services during the first phase of L700 activation. This has been successful on the basis that no interference was noted by Virgin Media upon eir site activations and eir has continued to maintain very close co-ordination week to week with Virgin Media and the other mobile operators. The coordination procedures are working efficiently with the other service providers.

5. Risks in relation to the expiry of the existing further Temporary ECS Licence (No.4) on 1 July 2022.

The risk of congestion and other disruption to consumer services and the locations where it would most likely arise in relation to the expiry of the existing further Temporary ECS Licence (No.4) on 1 July 2022, identifying if such congestion or disruption would reasonably be considered to be due to COVID-19 matters or mobile market developments / commercial strategy matters. MMC:

The risk of congestion or degraded service is very real throughout Ireland in the event of no further Temporary ECS Licensing framework, the voice and traffic growth is network wide. In the scenario where the licences are not renewed the capacity of the LTE700 band along with the improved customer experience resulting from the refarming of the 2100 band from UMTS to LTE would be removed resulting in a poor customer experience and increased congestion impacting the ability of citizens to work, learn, and engage in society. While some of the traffic carried over the period could be associated with normal (i.e. pre Covid) growth the trend lines shown above prove the societal changes arising from the impact of Covid has had a dramatic effect on traffic volumes and growth trend lines continue to be above those seen pre Covid.

6. Actions required in relation to the expiry of the existing further Temporary ECS Licence (No.4) on 1 July 2022 should no further Licence be issued.

Details of the preparations and actions that the MNOs has taken and would need to take in relation to the expiry of the existing further Temporary ECS Licence (No.4) on 1 July 2022 should no further Licence be issued.

MMC: eir continues to transform its network, building new infill and capacity sites, increase 5G network sites and deploy VoLTE. These programmes of work have continued throughout the pandemic and assist to enhance service for eir customers and will continue through 2022 but are complimented by the Temporary ECS Licensing framework. A discontinuation of the Temporary Licensing framework will result in service degradation where traffic growth continues at elevated levels due to the impact of Covid 19 restrictions as per trendline year to date if the temporary licensing regime is ceased before more spectrum is made available on a longer term basis.

7. Other factors: Any other factors deemed relevant to the consideration of a further Licence.

MMC: eir would like to stress that extending the temporary licensing regime if required will not negatively impact ComReg's plans for the next spectrum award. eir notes the positive short term benefits that accrue to citizens and society from extending the temporary licensing framework.

2 Three Ireland (Hutchison) Limited



Three Ireland (Hutchison) Limited.
Registered Office:
28/29 Sir John Rogerson's Quay,
Dublin 2, Ireland.

30th May 2022

Brendan O'Brien
Commission for Communications Regulation
One Dockland Central
Guild Street
Dublin 1

Dear Brendan

Temporary Spectrum Licence (No. 4)

This document together with the attached completed application form is Three's application to extend its temporary licence for use of 700MHz spectrum for an additional period of three months (July to October 2022). The Part 2 information supporting the application is included below, and the Part 3 information is also included in the spreadsheet that accompanies this document.

While our day to day lives have largely returned to normal following Covid-19, network traffic patterns remain altered. It would not be possible to meet this altered demand on Three's network without continued access to the 700MHz spectrum. Further details are included in the document below.

Please contact me directly if any clarification or further information is required for this application.

Yours Sincerely

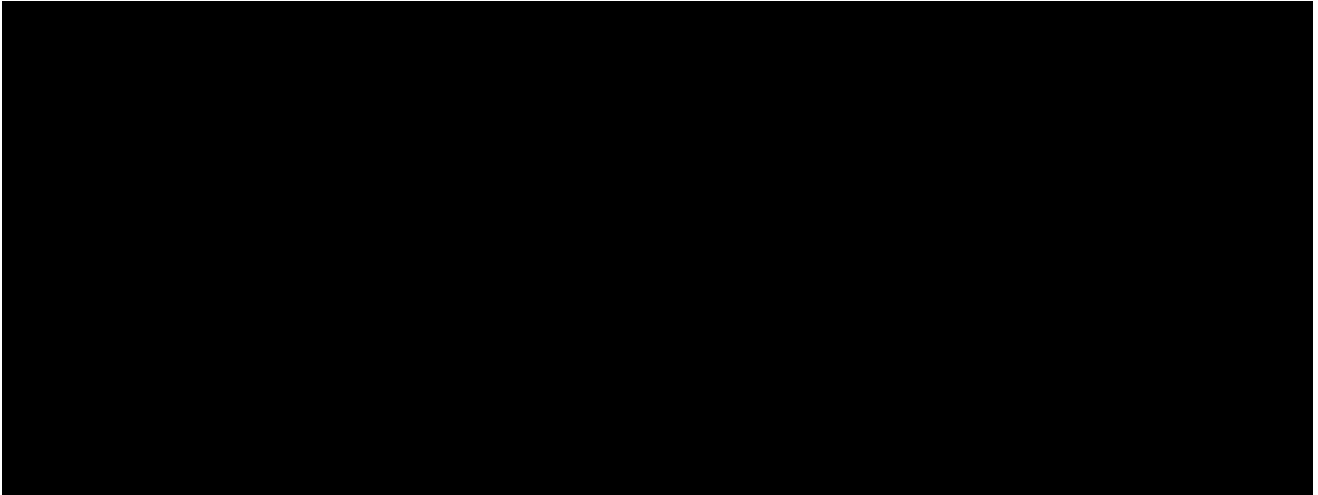
Tom Hickey

Extension to Temporary Spectrum - Part 2 Information

1. Network and Capacity Information

Voice traffic volumes remain slightly elevated above our baseline level as can be seen below.

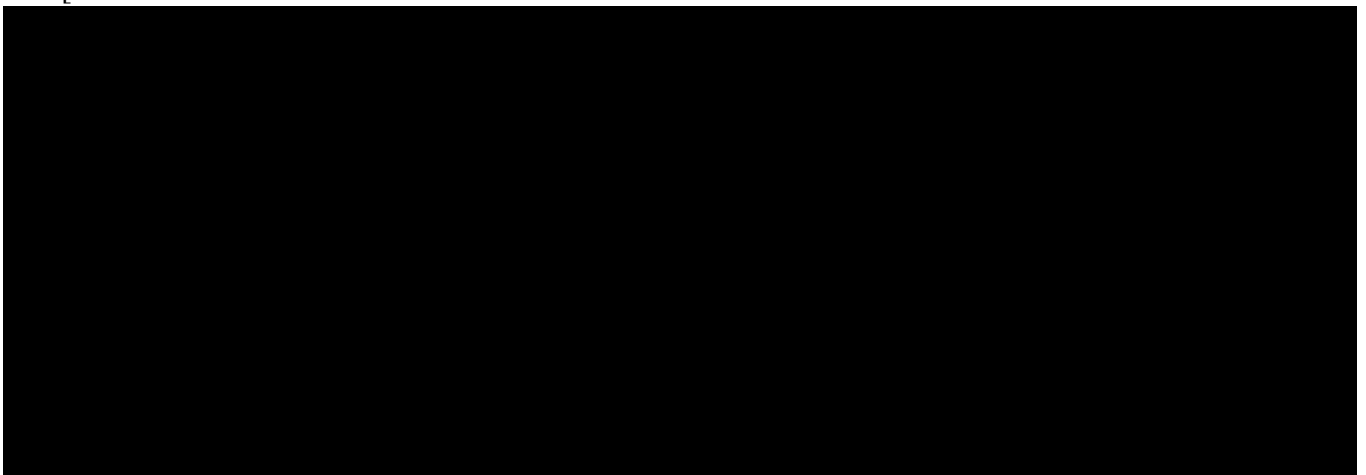
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end confidential section]

For data traffic, the remaining network traffic uplift is much more significant. As can be seen in the following two graphs, the increase in both busy hour and total daily traffic has been sustained.

[< Confidential section





end confidential section]

We have forecast our expected traffic over the period of this temporary licence and actual traffic remains elevated relative to what we would consider to be the baseline level. This elevation in traffic is slightly reducing but it still remains significant. Normal network improvement measures (including the deployment of additional spectrum, equipment, and sites) can be expected to meet normal growth in demand, however these increases need to be planned for in advance and they take time to deliver. We do not believe it would be possible or practical to expand network capacity to meet the elevated demand without access to the Temporary Licence for 700MHz. There is a certain element of traffic demand which is still unpredictable at this time, including the location of that demand. Building new sites and rolling out equipment is both slow and expensive and it would not be practical or efficient at this time to try to reconfigure our network to meet a short-term remaining demand until we have a full understanding of these new long term traffic patterns illustrating a full reopened economy with new hybrid working behaviours.

2. Sites and transmitters

Three has deployed 700MHz spectrum on [§< [REDACTED]] sites as of the end of May 2022. Details are in the attached spread-sheet.

3. How temporary rights have assisted with the provision of ECS in the state

The temporary spectrum licence has allowed Three to rapidly increase its network capacity in many of the areas that have experienced increased congestion arising from the changed demands brought about by Covid-19. When the Temporary Licences were first issued, we were able to immediately deliver extra capacity to an important but limited number of sites, and we have been able to continually expand the number of sites that use 700MHz since then. ComReg has decided to liberalise spectrum in the 2100MHz band on a permanent basis, so it is not necessary to include this spectrum in the temporary licence any longer. We have not sought a temporary licence in the 2.6GHz band at this time, so our ongoing requirement is only for a temporary licence covering the 700MHz band. The 700MHz band is particularly important for users in suburban and rural areas where the 800MHz and 900MHz bands may be experiencing congestion as a

result of the shift in traffic and many consumers have come to expect and rely on the service provided on this band over the past two years. We see a sustained requirement for this service at the moment.

When the restrictions were first introduced and traffic patterns were changed, there was a reduction in overall end-user speed/quality. Even though the overall traffic continued to grow during the year, the Temporary Spectrum Measures allowed us to restore or locally improve throughput/quality. We conservatively estimate that the use of 700MHz under the Temporary Spectrum Licence on Three's network has significantly increased quality of service to over [§<] users and coverage is approaching [§<] of the population for a high receive signal/high quality service. Withdrawal of the Temporary Spectrum Licence would mean a return to reduced quality of service for customers from Three, but also Virgin Media, Tesco Mobile, and Lyca Mobile. This would be counter to Government policy to facilitate people in working from home.

When we hit the initial surge in both voice and data traffic we immediately began to make changes to our network to ensure continuity of best service. Measures we could undertake at that time included re-parenting to ensure the distribution of traffic load throughout the network reflects the new profile and increasing core network capacity. Increasing capacity on the access network is a more difficult task as it involves use of new technology, more spectrum, more cells, or more sites in various locations within the country. The quickest means to increase capacity in a congested area is to introduce new technology or more spectrum on existing sites.

While we continually review the mix of technologies and spectrum available on all sites, it is difficult to make capacity gains without additional sites and equipment. We brought-forward our spend on network capacity and also initially deferred building of 5G sites for a period so that we could focus our effort on 4G capacity. We have since rebalanced our effort between 4G and 5G roll out. While we made ongoing gains in network capacity through the normal process of upgrade, the deployment of 700MHz to date has brought significant benefits to customers who would not be so well covered by the higher frequency bands.

4. Risks to the provision and quality of existing ECS

There is a coordination procedure in place between the mobile networks, and also including Virgin Media and other operators where appropriate. Overall, our experience has been that the coordination procedure is working well and there are no significant issues that need to be addressed.

5. Risks in relation to non-renewal

When we witnessed the surge from the first measures, there was a deterioration in quality of service for some customers, but there was also new demand when some citizens tried to work from home for the first time. We have been able to bring working connectivity to some customers for the first time using the temporary spectrum, but to also quickly introduce capacity to meet new demand. If the temporary licences are not extended, we estimate that this would materially affect connectivity for approximately [§<] users. This would

bring the risk that many of those customers would lose connectivity at home, making it difficult for those people to work from home.

6. Actions required in relation to non-renewal

If the licences are not renewed, we there will be an immediate reduction in capacity, causing some currently well performing cells to become congested and others to suffer reduced quality. There are no quick remedies to this congestion as existing sites are already optimised for normal traffic patterns. In some cases it might be feasible to build new sites but this is generally a slow and expensive process and is not feasible in the short term or for short-lived traffic demand. If the licences are not extended Three would be required to again re-focus its effort away from its 5G service roll-out to try to mitigate network issues where that is possible. This would have a negative impact overall on the development of 5G service in Ireland. As this application is for 700MHz only, most harm would be in rural areas where we have been able to introduce 700MHz relatively quickly to meet the increased demand. It will be necessary to implement a planned transition to the new assignments when we exit the period covered by the temporary licences.

3 Vodafone Ireland Limited



Vodafone Specific Response to Information

Covid-19 Potential Further Temporary ECS Licensing (ComReg Doc 22/02)

Version: [Non- Confidential]

Date: 03/06/22

Introduction

Changes in work, educational, and social use of Telecommunication brought about by COVID-19 continue to have an exceptional impact on the traffic carried in the Vodafone Mobile Network.

There is a return to normality which is welcome, however, as advised in our last submission they patterns of work - remote, hybrid and fully office based remain unpredictable. It will be some time before a stable post-Covid demand pattern is clear.

The availability of 700MHz and 2100MHz- Carrier Upgrades has played a significant part in addressing key data congestion hot spots and helping us bring congestion back into manageable levels of customer experience. This additional Spectrum will greatly help us deal with the ongoing changes in Data Traffic demands of VF IE customers as we continue go through the stages of adjustment to post lockdown recovery.

The primary considerations to note

- The 700MHz layer accounts for [REDACTED] per cent of all data traffic in rural and urban areas;
- [REDACTED] customers are dependent on 700MHz for remote connectivity;
- Traffic is forecast to increase by further [REDACTED] year on year.; and
- Without the 700MHz layer there will be very significant congestion and loss of service in rural areas.

1. Network traffic/ capacity/ performance information

- (i) Information regarding the traffic (voice and data), capacity /performance of the network considering the extraordinary situation arising from COVID19. In particular, the changes in network traffic (voice and data), capacity / performance since COVID-19 until now;
- (ii) Information on the expected traffic demand and network capacity beyond 1 July 2022; and
- (iii) Observations on how much of the changes in traffic and capacity is due to forecasted annual changes that would be expected on a network in the normal course (accounting for seasonal changes and projected market developments in the absence of COVID-19) and those that can reasonably be considered to be directly related to Government COVID-19 measures.

The extraordinary conditions and lack of certainty arising from Covid-19 remain clear despite the relaxation of government controls.

While it remains difficult to predict the future growth in the six months post July 2022, we are forecasting year on year growth [REDACTED]%. In addition to uncertainty in overall traffic volume means it is still not clear where traffic needs to be delivered over the coming months.

It also continues to be unclear what the stable office/remote/hybrid working regime will be. Most organisations are in a 'settle in' period and are working out future models of work for partial or full return to office environments. It is important we use the temporary spectrum to advance the national policy to promote remote working and, in the case of Vodafone, this would be undermined for [REDACTED] remote workers if supports are removed too early.

The key metric on 4G traffic has increased by [REDACTED] from March 20 to March 22. The traffic growth increase remains [REDACTED] [REDACTED] estimated in pre-Covid times. We now also see [REDACTED] of Weekly Busy Hour is now carried in Rural/Town and Suburban areas and rely on the L700 Low band layer to provide both additional coverage and address Congestion Hot Spots.

2. Ability to make use of existing temporary spectrum assignments in any further Temporary ECS Licensing framework – sites and transmitters

- (i) Information regarding the number, locations and deployment dates of sites/transmitters per spectrum band that have actually been used to date using temporary ECS rights of use, indicating the terrestrial system(s) (e.g., LTE) supported; and
- (ii) Information on the number of sites/transmitters per band that would be expected to be used over the duration of any further temporary licensing framework indicating the terrestrial system(s) (e.g. LTE) being supported. Note, where a Licensee has applied for and been granted a 2.1 GHz Band Liberalised Use licence, information for the 2.1 GHz band should not be included.

Please see accompanying spreadsheet with details of locations used and planned locations. This only includes 700MHz information as Vodafone has been granted a 2.1GHz Liberalised Use licence.

3. How temporary rights have assisted with the provision of ECS in the State

- (i) Information on how existing temporary rights have assisted in alleviating the network capacity/performance constraints to-date. Specifically, please provide information on the percentage of network traffic (voice and data) carried by temporary spectrum rights for the each of the 700 MHz band and 2.1 GHz bands
- (ii) Information on how temporary rights may materially assist over the duration of any further Temporary ECS Licensing framework, noting that where a Licensee has applied for and been granted a 2.1 GHz Band Liberalised Use licence, information on the 2.1 GHz band should not be included.

The 700 layer continues to be particularly important in offloading/serving congested areas in Rural/Suburban Ireland. Without the 700 layer in particular, remote workers in congested areas of rural Ireland would face significant service issues. [REDACTED]

[REDACTED] it has been targeted to relieve congested areas, particularly in Rural Ireland where other available carriers will not reach. The 700MHz layer accounts for [REDACTED] of all data traffic in rural and urban areas. All sites where 700MHz is on air would be now experiencing significant congestion without the capacity added by the Temporary Measures.

4. Managing the risks to the provision and quality of existing ECS given the use of the temporary spectrum rights

- (i) Information regarding the management of risks to the provision and quality of existing ECS and the measures taken to date by the MNO. For example, the key measures taken on foot of Annex 4 of Document 20/27 - 700 MHz Coordination Procedures.

In bringing our first 700MHz sites on-air, we coordinated closely with cable provider Virgin and DTT provider RTE to ensure that we did not affect existing services. Regular communication has continued other MNOs to ensure no interference with one another's services. Separately the additional network capacity released to mobile operators by these measures has also facilitated the leasing of 3.5GHz spectrum to Fixed Wireless operators, improving the services they can provide. This is set to continue for a further 3 months. We remain committed to co-ordination procedures and will work closely with other spectrum users in this regard.

5. Risks where there is no further Temporary ECS Licensing framework.

- (i) The risk of congestion and other disruption to consumer services and the locations where it would most likely arise in the event that there is no further Temporary ECS Licensing framework, identifying if such congestion or disruption would reasonably be considered to be due to COVID-19 matters or mobile market developments / commercial strategy matters.

The reality remains that the temporary measures will need to be in place for the foreseeable future to maintain services thereby ensuring continuity of business and support to the economy and society. Covid restrictions have been lifted but Covid recovery is ongoing and we must do all we can to ensure the economy and society can function effectively.

The challenge in predicting when conditions are optimal to relax temporary measures remains complex. The absence of temporary licences would mean customers who are working and living from home would suffer congestion and/or lack of service. The impact would be noticeable for those in suburban and rural areas nationwide, where a higher and fluctuating capacity demand is not the norm. If the Temporary measures were not renewed the capacity of many of our most busy network sites would be reduced significantly. Our customers would unfortunately experience extensive congestion, as we could not build new sites to replace this capacity quickly enough and it would not make any economic sense to do so.

6. Actions required where there is no further Temporary ECS Licensing framework.

- (i) Details of the preparations and actions that the MNO has taken and would need to take in the event of no further Temporary ECS Licensing framework.

Vodafone continue to plan our future network expansion on future spectrum availability. If the temporary measures are not extended the only alternative way to increase capacity would be to add new radio sites. Given the very short time between now and future spectrum releases it would not be economic or practical to add sufficient sites if these temporary measures are not renewed.

7. Other Factors

- (i) Any other factors that the MNOs deem relevant to the consideration of any further Temporary ECS Licensing framework.

Vodafone welcome ComReg's proactive engagement to date in relation to Temporary spectrum and required renewals.

ENDS