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Rialáil Cumarsáide
Commission for
Communications Regulation

COVID-19: Temporary spectrum management measures

Temporary spectrum rights in the 700 MHz, 2.1 GHz and 2.6 GHz Bands

Consultation and Draft Regulations

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Chapter 1

1 Introduction

- 1.1 On 11 March 2020, the World Health Organisation (“WHO”) announced that the novel coronavirus (COVID-19) could be characterised as a pandemic.
- 1.2 Taking swift action, the following day, the Irish Government announced a suite of measures to tackle the extraordinary situation arising from the spread of COVID-19 in Ireland¹, including:
- the closing of schools, colleges and childcare facilities;
 - the cancelation of large public gatherings;
 - the closure of all public houses;
 - requesting the public to cancel social gatherings; and
 - encouraging people to work from home where possible,
- (hereinafter referred to as the “Temporary Situation”).
- 1.3 The swiftness and impact of these measures is resulting in significant changes to the normal traffic levels and patterns of the electronic communications networks (“ECNs”) in Ireland. For example, [REDACTED] has seen an overall growth in daily traffic of [REDACTED] and its ‘Busy Hour’ traffic² has increased by a considerable [REDACTED]. That translates as a daily increase in voice traffic of [REDACTED] and a daily increase in data traffic of [REDACTED]. Others networks are experiencing similar growth. The INEX³ is indicating an uplift of circa 100 GB since the commencement of the Temporary Situation.
- 1.4 Now more than ever, people are depending on and using ECNs to stay in contact with relatives and friends and, across the majority of sectors, people are now working from home.

¹ See [Statement by An Taoiseach Leo Varadkar On measures to tackle Covid-19 Washington, 12 March 2020](#)

² Busy hour is the term used to describe the given period within a day that have the highest traffic intensity. The traffic intensity values obtained within the busy hour are used to calculate the traffic load, capacity of the mobile communication network equipment and to determine traffic performance indicators.

³ INEX is the internet peering point for the island of Ireland.

- 1.5 On 24 March 2020, the Government announced further measures to address the Temporary Situation.⁴
- 1.6 With physical distancing measures now in place, the use of electronic communication services (“ECS”) is now assuming a more important role in day to day life and working arrangements for everyone. Both now and during the remaining period of the Temporary Situation, it is imperative that these networks continue to provide services.
- 1.7 The ability to make or receive voice calls and access services over the internet (particularly indoors) is likely to be of significant importance and a key priority for consumers⁵ over the period of the Temporary Situation.
- 1.8 Voice and internet services are provided to consumers through a variety of fixed and wireless alternatives and in many cases the primary means of accessing these services will be through a fixed line connection which is generally less prone to congestion from increased traffic.
- 1.9 However, for mobile and other wireless networks, significant increases in traffic can have a detrimental effect on their network, as these networks can be constrained by the amount of radio spectrum available to them.
- 1.10 Mobile and other wireless networks play an important role in providing services, and in this regard, ComReg notes that:
- Around half of households do not have a fixed line **voice connection** and would primarily rely on mobile networks (which has close to full population penetration) to make calls.⁶
 - Around 20% of households primarily rely on wireless means for **internet access**⁷.
- 1.11 From communications with the mobile network operators (“MNOs”), ComReg understands that operators are optimising their networks to best meet the demands of the Temporary Situation. However the MNOs have concerns around their ability to continue to both meet demand and maintain service levels in these difficult times.

⁴ See [Post Cabinet Statement, An Taoiseach, Leo Varadkar 24 March 2020](#)

⁵ Unless the context otherwise requires, when referring to consumers in this document, ComReg is referring to all end users of the relevant services, including businesses.

⁶ Mobile Consumer Experience Survey 2019, Document 19/101, slide 22.

⁷ This is an estimate based on Consumer FVCT Market Research, Document 17/90a, (slide 19), the Mobile Consumer Experience Survey 2019 and ComReg’s Quarterly Key Data Report Q4 2019, Document 20/15.

1.12 While ComReg has already assigned 750 MHz of spectrum rights⁸ to operators, it sought views on whether further spectrum measures could be taken to support the delivery of mobile and wireless services during the Temporary Situation.

MNOs' request for temporary spectrum rights in the 700 MHz, 2.1 GHz and 2.6 GHz Bands

1.13 On 24 March 2020, each of the three MNOs (Eir, Three and Vodafone) submitted a common letter⁹ to ComReg requesting it to take actions to temporarily:

- allow the use of spectrum in the 700 MHz Band based on dedicated national assignments of up to 2 × 10 MHz to each MNO;
- allow the use of radio spectrum in the 2.6 GHz Band for specific hotspots which the MNOs believe could be particularly useful to serve any temporary medical facilities established during the current crisis. Access to the 2.6 GHz Band would be based on a site-by-site assignment process; and
- allow liberalised use (i.e. not restricted to any one technology) of spectrum rights in the 2.1 GHz Band, which is currently licensed for 3G-use only,
- (together the “Joint Request”).

1.14 This consultation sets out ComReg’s preliminary analysis of the Joint Request, ComReg’s proposals to address the issues raised in the Joint Request (Chapter 3) and its preliminary assessment of same (Chapter 4).

1.15 Noting the importance of progressing matters in an expedient timeframe due to the nature of the Temporary Situation, ComReg is employing a greatly accelerated consultation process and requesting submissions no later than close of business on 31 March 2020.

1.16 It is important to note that the background to this consultation is exceptional and necessitates analysis and proposals which are unlikely to be necessary or appropriate for future ComReg spectrum-related consultations.

⁸ This is comparable to the amount assigned in other European countries, and is assigned across a number of spectrum bands, being the 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 3.6 GHz Bands.

⁹ See Annex 3.

Other supporting actions in the context of the Temporary Situation

- 1.17 ComReg is aware that there are other supporting actions than can also be taken to support the provision of services to end users or the wireless industry during the Temporary Situation. ComReg is engaging with the industry on these as and when they arise.
- 1.18 In this regard, ComReg would encourage MNOs to consider relaxing data caps for end users and leasing spectrum to other operators, for example smaller operators providing fixed access services in rural areas who use the 3.6 GHz Band, on the basis that if one operator has spectrum that is not currently in use, that another operator could put this to good use.
- 1.19 ComReg notes that the 3.6 GHz Band is an important spectrum band for the delivery of fixed wireless broadband services in Ireland, particularly in rural Ireland, and that currently the spectrum assignments of the MNOs are largely unused.

Structure of document

- 1.20 This document is structured as follows:
- **Chapter 2:** sets out background information, including information on the MNOs request for temporary spectrum rights, the Covid-19 regulatory measures in other countries and a high level summary of the legal framework relevant to this consultation ;
 - **Chapter 3:** sets out ComReg's assessment of the MNO's request for temporary spectrum rights and ComReg's specific proposals. In addition, it seeks views on whether other actions can also be taken;
 - **Chapter 4:** sets out ComReg's assessment of the Proposed Approach against the relevant statutory framework and including the impact on competition and consumers;
 - **Chapter 5:** sets out ComReg's draft Decision regarding its proposals;
 - **Chapter 6:** sets out information on submitting comments and outlines the next steps.
 - **Annex 1:** is a glossary of terms;
 - **Annex 2:** summarises ComReg's statutory functions, objectives and duties relevant to the management of Ireland's radio frequency spectrum

- **Annex 3:** sets out the submissions from the MNOs in support of the proposals;
 - **Annex 4** sets out the draft Regulations to facilitate the proposed assignment of temporary spectrum rights of use by ComReg; and
- Annex 5** sets out the preliminary views of the Irish Aviation Authority.

Chapter 2

2 Background Information

2.1 MNOs request for temporary spectrum rights

- 2.1 Over the last month and in the context of the impending COVID-19 pandemic ComReg intensified its communications with operators to better understand the changing demands being placed on their networks and their ability to meet this demand.
- 2.2 During these discussions, operators informed ComReg that, as a result of the measures implemented by the Government in response to the Temporary Situation, traffic levels and patterns were significantly changing from their normal behaviour. In particular, both voice and data traffic was growing and there was a shift in the time of day usage patterns and the geographic locations of use.
- 2.3 Some operators informed ComReg that this was placing additional demands on their networks, as the capacity of their networks is constrained by the resources available to them, which in the case of wireless and mobile operators can often be constrained by the amount of radio spectrum available for use.
- 2.4 Therefore, on 20 March, ComReg held a teleconference with various industry operators¹⁰ regarding the Temporary Situation and, following this meeting, invited the MNOs to jointly submit a sufficiently detailed proposal that would include information such as:
- the risk of congestion;
 - the locations where it is most likely to arise;
 - the ways in which temporary variations of licence conditions or assignment of rights of use would be useful;
 - the lead time to take advantage of such varied or additional rights of use;
 - the risks that would be involved in making changes to networks; and
 - the information operators would envisage providing to ComReg to demonstrate that the time had come to trigger a temporary variation of licence conditions or assignment of new rights of use.

¹⁰ BT Ireland, eir, Imagine, Siro, Sky, Three, Virgin Media, Vodafone Ireland.

- 2.5 ComReg also encouraged industry to be as inclusive as possible in developing such a joint proposal.
- 2.6 On 24 March 2020, each of the three MNOs submitted a common letter to ComReg providing information on the above (see Annex 3) and requesting ComReg to take appropriate actions to temporarily:
- allow the use of spectrum in the 700 MHz Band based on dedicated national assignments of up to 2 × 10 MHz to each MNO;
 - allow the use of radio spectrum in the 2.6 GHz Band for specific hotspots which the MNOs believe could be particularly useful to serve any temporary medical facilities established during the current crisis. Access to the 2.6 GHz Band would be based on a site-by-site assignment process; and
 - allow liberalised use (i.e. not restricted to any one technology) of spectrum rights in the 2.1 GHz Band, which is currently licensed for 3G-use only,
- (together the “Joint Request”).
- 2.7 ComReg’s analysis of the Joint Request, and its proposals to address the issues raised in same, are set out in Chapter 3.

2.2 COVID-19: regulatory measures taken in other countries

- 2.8 Given the increased use of and reliance on electronic communications networks and services during the Temporary Situation generally, ComReg observes that measures have been taken in Europe and elsewhere to support the continued provision of services to end users.
- 2.9 On 19 March 2020, a joint statement was issued by the European Commission (“EC”) and the Body of European Regulators for Electronic Communications (“BEREC”) on how to cope with the increased traffic load due to the Temporary Situation¹¹. In this document, the EC and BEREC:
- state that they are “committed to participate to the collective effort to support individuals and businesses to continue their activities and contacts in the best possible way through the Internet during these unprecedented times”; and

¹¹ https://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/9236-joint-statement-from-the-commission-and-0.pdf

- clarify that pursuant to Open Internet Regulation ([Regulation \(EU\) 2015/2020 Article 3.3](#)), operators are authorised to apply exceptional traffic management measures, inter alia, to prevent impending network congestion and to mitigate the effects of exceptional or temporary network congestion, always under the condition that equivalent categories of traffic are treated equally.
- 2.10 Within Europe, Cullen International recently carried out a review of 16 European countries in relation to regulatory measures taken in light of the Temporary Situation¹², which highlighted that:
- except in countries most hit by the crisis (e.g. Italy and Spain) regulators have not taken specific measures to date; and
 - in countries where regulatory measures were deemed necessary, the types of measures taken varied, and include consumer protection initiatives, continuity of service matters, and measures related to spectrum assignment.
- 2.11 On 13 March 2020, the U.S Federal Communications Commission (“FCC”) launched the “Keep Americans Connected Pledge” to keep Americans connected as the country experiences serious disruptions caused by the Covid-19 outbreak¹³. Over the next 60 days, companies have pledged to:
1. *not terminate service to any residential or small business customers because of their inability to pay their bills due to the disruptions caused by the coronavirus pandemic;*
 2. *waive any late fees that any residential or small business customers incur because of their economic circumstances related to the coronavirus pandemic; and*
 3. *open its Wi-Fi hotspots to any American who needs them.*
- 2.12 In addition, the pledge includes the granting of additional spectrum rights to wireless companies to help them meet their customers’ needs during the coronavirus pandemic. In this regard, the FCC has recently granted a 60-day Special Temporary Authority to three wireless companies, being:
- T-Mobile U.S.A. for spectrum in the 600 MHz Band;
 - U.S. Cellular for spectrum in parts of California, Oregon, Washington, and Wisconsin; and

¹² See <https://www.cullen-international.com/product/documents/FLTEEP20200012> 23 March 2020 (Cullen International is a pay subscription website)

¹³ See <https://www.fcc.gov/keep-americans-connected>

- Verizon for spectrum in the AWS-3 Band.

2.13 In Mexico, the Instituto Federal de Telecomunicaciones (IFT) is also analysing measures to grant temporary spectrum¹⁴.

2.3 Legal Framework

2.14 The Communications Regulation Act 2002 (as amended) (the “2002 Act”), the European Common Regulatory Framework for ECN and ECS (including the Framework and Authorisation Directives¹⁵ as transposed into Irish law by the corresponding Framework and Authorisation Regulations¹⁶), and the Wireless Telegraphy Acts 1926 (as amended)¹⁷ (the “1926 Act”) set out, among other things, functions, objectives, powers and duties that are relevant to ComReg’s management of the radio spectrum.

2.15 In exercising its function of the management of Ireland’s radio spectrum (and in accordance with relevant ministerial Policy Directions given under section 13 of the 2002 Act), ComReg’s primary spectrum management objective is to ensure the efficient management and use of the radio spectrum. ComReg is obliged to effectively carry out this function, including having regard to relevant government policy statements and international developments.

2.16 In the context of radio spectrum used for ECN/ECS, one of ComReg’s primary objectives is to promote and create the conditions for effective competition in the provision of ECN and ECS. In that regard, section 12(2)(a) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at the promotion of competition, including:

- ensuring that there is no distortion or restriction of competition in the electronic communications sector;
- encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources; and

¹⁴ See <https://www.eleconomista.com.mx/empresas/Analizaremos-si-la-industria-necesita-mas-espectro-para-responder-a-los-efectos-del-coronavirus-IFT-20200319-0042.html> , 19 March 2020.

¹⁵ Directive No. 2002/21/EC (as amended by Regulation (EC) No. 717/2007, Regulation (EC) No. 544/2009 and Directive 2009/140/EC) (the “Framework Directive”) and Directive No. 2002/20/EC (as amended by Directive 2009/140/EC) (the “Authorisation Directive”)

¹⁶ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) (“Framework Regulations”) and the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011) (“Authorisation Regulations”).

¹⁷ The Wireless Telegraphy Acts, 1926 and 1956, the Broadcasting Authority Acts, 1960 to 1971, in so far as they amend those Acts, the Wireless Telegraphy Act 1972, Sections 2 , 9, 10,11,12,14,15,16,17 and 19 of the Broadcasting and Wireless Telegraphy Act 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality.
- 2.17 In pursuit of its objectives under Regulation 16(1) of the Framework Regulations and section 12 of the 2002 Act, ComReg must apply objective, transparent, non-discriminatory and proportionate regulatory principles.
- 2.18 Annex 2 of this document sets out in more detail ComReg's statutory functions, objectives and duties relevant to the management of Ireland's radio frequency spectrum.

Chapter 3

3 ComReg's proposals

- 3.1 In light of the information received, and as discussed in the remainder of this document, ComReg is consulting on the putting in place of a licensing framework in the context of the Temporary Situation, where following proper application and assessment of such applications by ComReg, a temporary spectrum licence (hereafter referred to as "Temporary ECS Licences") could be granted.
- 3.2 In this chapter ComReg assess the matters set out in the Joint Request, and sets out its key proposals regarding the Temporary ECS Licences with regard to:
- the overall approach and principles ComReg will apply in relation to issuing any Temporary ECS Licences in the 700 MHz Duplex, 2.1 GHz Band and 2.6 GHz Bands.
 - the appropriate duration of licences;
 - the appropriate fee to be attached to the granting of licences;
 - the provision of coverage and capacity at specific locations; and
 - consideration of other measures that may be taken to support networks to meet the needs of consumers and businesses during the Temporary Situation, including encouraging where possible the relaxation of data caps or the leasing of spectrum by operators to other operators that may better make use of the spectrum during the Temporary Situation.
- 3.3 ComReg proposals are intended to be the most expedient and necessary considering the circumstances of the Temporary Situation.

3.1 Background on the 700 MHz Duplex, 2.1 GHz Band and

2.6 GHz Band in the context of the Temporary Situation

3.1.1 Availability of the requested bands and ComReg's Proposed Multi Band Spectrum Award

- 3.4 The bands being considered for any potential temporary licences are also being considered as part of ComReg Proposed Multi Band Spectrum Award (Proposed MBSA), a draft decision on which was recently published in Document 19/124. ComReg stresses that the present proposals are entirely without prejudice to those in the Proposed MBSA.
- 3.5 The Temporary Situation as discussed above is unique – therefore ComReg is following a different approach compared to when considering the award of long term spectrum rights of use.
- 3.6 The spectrum bands requested are potentially useful in the circumstances and ComReg proposed approach below aims to make use of spectrum that would not otherwise be used during this Temporary Situation.
- 3.7 ComReg notes that the proposed approach as set out below includes measures to ensure that operators are readily able to make use of the spectrum and this evidence will be requested as part of the application process.
- 3.8 The spectrum bands that formed part to the Joint Request are generally available, however ComReg notes the following in relation to these bands
- The **700 MHz Band** was previously used by RTÉ for the provision of Digital terrestrial television (DTT) and since 4 March 2020 this band is no longer in use by DTT and as such is available for any temporary licences
- 3.9 ComReg previously set out details of how the date of 4 March 2020 was determined, along with further information on the results of the international coordination process, in its Information Notice of 31 March 2017 (Document 17/23)¹⁸.
- The **2.1 GHz Band** is currently licenced to the three MNO's for the provision of 3G services. The Joint Request was for the temporary liberalisation of this band. This matter is being considered as part of the Proposed MBSA and in principle liberalisation of this band is possible.

¹⁸ Document [17/23](#)

- The **2.6 GHz Band** is not currently used however there are critical compatibility considerations between any use of the 2.6 GHz Band and the Irish Aviation Authorities use of the upper adjacent band (i.e. 2.7 GHz Band) for aeronautical primary radars (see Annex 5 for IAA initial views). While in principle the use of the band is possible, the issuing of any temporary licences would be subject to confirmation from the IAA that this is acceptable in the circumstances. Noting in particular that IAA Primary radars are a safety of life system and acute caution needs to be taken in this regard.

3.1.2 Equipment availability for consumers

3.10 Based on its handset testing on 137 devices available in the Irish market¹⁹, ComReg notes that a high percentage of the existing devices on the market have capabilities in each of the three bands²⁰. For example:

- 92% of the 137 existing phones on the Irish market have 4G capability in Band 1 (2.1 GHz Band);
- 92% of the 137 existing phones on the Irish market have 4G capability in Band 7 (2.6 GHz FDD Band);
- 61% of the 137 existing phones on the Irish market have 4G capability in Band 38 (2.6 GHz TDD Band); and
- 56% of the 137 existing phones on the Irish market have 4G capability in Band 28 (700 MHz FDD duplex).

3.1.3 Equipment availability for the network operators

3.11 The full extent to which each of the MNO's networks are currently provisioned to operate in the 700 MHz Duplex, 2.1 GHz Band (on a liberalised basis), and 2.6 GHz Band will be known by each individual operator. However, ComReg understands that all MNOs have the ability to make use of the 2.1 GHz Band for 4G deployments at a number of site locations. The capability to use the 700 MHz and 2.6 GHz Bands is less certain.

¹⁹ Mobile handset testing Data – Documents 18/82 and 19/67.

²⁰ ComReg also notes that iPhones and Samsung Galaxy Phones (the most recent of which have capability which cover most of the bands) account for 72% of smartphone phones used in Ireland (2019 Consumer Experience Survey). Therefore the actual number of customers that can use the bands in each case may be higher than the percentages shown below.

- 3.12 ComReg welcomes the submissions from these operators and any further information they wish to put forward. In any event, ComReg proposes to seek supporting material from these operators as part of the application process, confirming their ability to make ready and timely use of the relevant bands applied for.

3.2 ComReg’s overall approach

- 3.13 In this section, ComReg firstly sets out its overall approach to the application process and issue of Temporary ECS Licences and subsequently outlines its band specific proposals in respect of the frequencies under consideration.

3.2.1 Eligibility for a “Temporary ECS Licence” for spectrum rights in the 700 MHz Duplex, 2.1 GHz and/or 2.6 GHz Bands and information required in support of same

- 3.14 ComReg observes that the MNOs have requested a light-touch licensing approach for the three bands²¹ (with additional information to be provided by each MNO in its individual application).

²¹ For the 700 MHz Band the MNO’s stated that:

- “... this would take the form of a simple assignment of the spectrum to existing mobile operators through short term licences. The assignment process **should require no more than an indication from operators that they wish to receive a 700MHz temporary licence, and the amount of spectrum required**” (emphasis added)

For the 2.1 GHz Band the MNO’s stated that:

- “... **ComReg should simply amend the existing licences to liberalise them**, i.e. the 3G restriction should be removed. After this **it should be up to operators to determine how to use the spectrum** as their networks allow/demand” (emphasis added)

For the 2.6 GHz Band the MNO’s stated that:

- “... *we suggest operators are allocated spectrum but **make application to ComReg for individual sites where they will use this**. We envisage this particularly useful to serve any temporary medical facilities established during the current crisis.*” (emphasis added)

- 3.15 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.
- 3.16 This approach also reflects the individual expressions by some of the MNOs and is clear from ComReg's request to the MNOs of 20 March.
- 3.17 Accordingly, ComReg has incorporated this approach into the draft Regulations as follows:
- (2) The Commission may grant a Licence, following payment by the applicant of the relevant fee prescribed in Regulation 8, in accordance with the Authorisation Regulations and having regard to, among other things:
 - (a) available information regarding the extraordinary situation arising from COVID-19 and, in particular, as it may reasonably affect Electronic Communications Networks and the provision of relevant Electronic Communications Services in the State;
 - (b) available information regarding the impact of the extraordinary situation arising from COVID-19 upon the capacity of the Electronic Communications Network operated by the Undertaking, including the locations in the State where any capacity constraints are occurring or are likely to occur;
 - (c) available information regarding how the rights of use of radio frequencies applied for by the Undertaking would reasonably and materially assist in alleviating the capacity constraints identified in subparagraph (b), including the lead time for the Undertaking to effectively make use of such rights of use of radio frequencies;
 - (d) available information regarding the risks to the provision of existing Electronic Communications Services, and the quality of such existing provision, by the Undertaking in making changes to its Electronic

Communications Network to effectively make use of the rights of use of radio frequencies applied for;

- (e) the need to encourage the efficient use and ensure the effective management of the radio frequency spectrum; and
- (f) the Commission's obligations and objectives in relation to competition for the provision of Electronic Communications Networks and Electronic Communications Services.

3.18 Furthermore, and as part of the application process²², ComReg will be asking the applicant to confirm that the spectrum rights applied for can be readily used and to provide sufficient supporting material in respect of same. ComReg observes that such information will be required to populate the Temporary ECS Licence and the expected timeframe from licence issue that each piece of apparatus can be brought into use.

3.19 At this juncture, the types of information that would be required in an application ("Appropriate Evidence") includes:

- the radio spectrum band applied for;
- the name/identity of the site to be included in the licence;
- the coordinates of the site (easting and northing);
- equipment index reference;
- maximum EIRP for the site;
- confirmation for each site that equipment including antennas are in place to be used in the respective band;
- the key steps needed to bring the site or group of sites on air including the expected dates for this; and
- for each equipment index reference, the terrestrial system, equipment description, manufacturer, make and model of the piece of equipment.

²² ComReg notes that the Industry proposed the view that "*Operators will advise ComReg of sites where the flexibility measures have been implemented.*" ComReg notes that operators will need to supply the Appropriate Evidence before Licences will be issued.

3.20 Should a Temporary ECS Licence be subsequently issued and should the licensee wish to deploy apparatus at further sites, the licensee must submit relevant information to ComReg in advance of deployment to keep its licence up to date.

3.2.2 Form of Licences

3.21 In relation to the general form of the Temporary ECS Licence, ComReg refers to the template Licence in Schedule 1 of the Draft Regulations in Annex 4, where:

- the details of the relevant spectrum blocks to be included in the Licence will be captured in Part 1 of same;
- Parts 2 and 3 of the Licence will contain details of the Apparatus and site locations to which the licence relates; and
- Part 4 contains the applicable licence conditions.

3.2.3 700 MHz Duplex

3.22 The 700 MHz Duplex is as illustrated below:

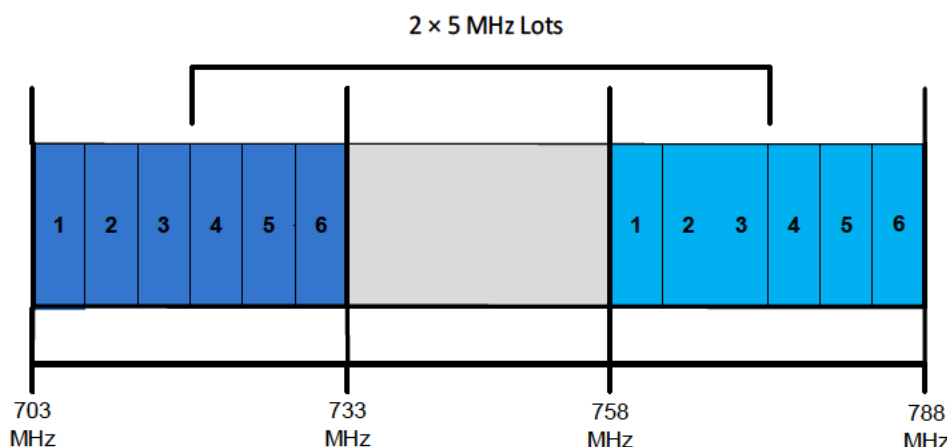


Figure 1. The 700 MHz Duplex

Views received from industry

3.23 Specific matters relating to the 700 MHz Duplex raised by Eir, Three and Vodafone in summary are:

- that an equal assignment of spectrum (2 × 10 MHz each) be made to the three existing MNO's in the same order as the 800 MHz Band,(i.e. Eir, Three then Vodafone, lowest to highest); and

“There are 6 blocks of 2x5MHz duplex spectrum available in the band. The operators have agreed that at this time it appears that the optimum assignment to minimise cross-network interference is to allocate the blocks in the same order that exists in the 800MHz band, i.e. Blocks 1-2 to Eir; Blocks 3 and 4 to Three; and Blocks 5 and 6 to Vodafone. Our request is for ComReg to allocate the Blocks in that order.”

- that the risk of interference being caused with the deployment of 700 MHz Duplex into the 800 MHz and 900 MHz deployments can be managed by operators and a joint protocol between the operators would be developed:

“There is a risk that use of 700MHz will cause some interference to existing 800 and 900MHz services. However, this can be managed by normal operating processes among operators. Each operator will inform the other operators of any new usage of 700MHz and cease use on that specific site if any interference is caused. A joint protocol on this matter will be developed between operators over the coming days.”

Consideration of industry views and ComReg’s proposals

- 3.24 ComReg understands that there may be technical challenges when commissioning 700 MHz Duplex sites within a short timescale and negating cross network interference with sites deployed in the 800 and 900 MHz Bands.
- 3.25 In this regard, ComReg considers the proposals reasonable and a prudent approach to mitigation. It is ComReg’s proposal that any assignments should follow the same ordering of spectrum assignment as currently assigned in the 800 MHz Band and the risk of interference between the 700 MHz Band and the 800 MHz and 900 MHz Band should be managed between the operators. ComReg is supportive of the operators establishing a joint protocol to manage same.
- 3.26 Therefore, subject to the Appropriate Evidence being provided (see below) as part of the application process for each operator. In the event that each operator satisfactorily justifies the Appropriate Evidence for 2 × 10 MHz, ComReg proposes the following spectrum assignments for the period of the Temporary Situation:
- **Eir:** 703 to 713 MHz paired with 758 to 768 MHz;
 - **Three:** 713 to 723 paired with 768 to 778 MHz; and

- **Vodafone:** 723 to 733 paired with 778 to 788 MHz.

3.27 The licence conditions for an Temporary ECS Licence for the 700 MHz Duplex are as set out in Part 4 of the Schedule to the Draft Regulations contained in Annex 4 which, in summary, consist of the following:

- the Licence would be technology and service neutral in accordance with the 700 MHz EC Decision;
- the Licence would be of a non-exclusive nature; and
- certain technical conditions in accordance with the 700 MHz EC Decision.

3.2.4 2.1 GHz Band

3.28 The 2.1 GHz Band showing spectrum assigned under current licences is illustrated in Figure 2 below:

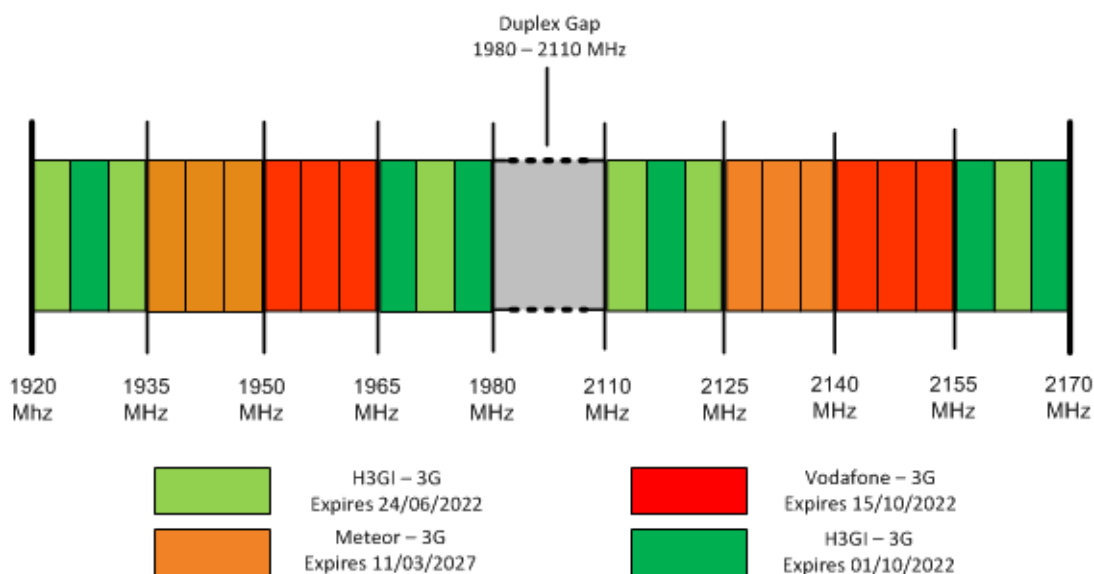


Figure 2. The 2.1 GHz Band showing spectrum assigned under current licences

Views received from industry

3.29 Eir, Three and Vodafone propose that the existing rights of use would simply be liberalised.

Consideration of industry views and ComReg’s proposals

- 3.30 As noted above, it is proposed that ComReg would issue, as appropriate, a single liberalised Temporary ECS Licence which would include the relevant spectrum blocks listed in Part 1 of Schedule 1 of same.
- 3.31 As the 2.1 GHz Band is currently licensed to Eir, Three and Vodafone as illustrated in Figure 2 above, applications would only be accepted from those three operators.
- 3.32 The licence conditions for a Temporary ECS Licence in the 2.1 GHz Band are as set out in Part 4 of the Schedule to the Draft Regulations contained in Annex 4 which, in summary, consist of the following:
 - the Licence would be technology and service neutral in accordance with the 2.1 GHz EC Decision;
 - the Licence would be of a non-exclusive nature; and
 - certain technical conditions in accordance with the 2.1 GHz EC Decision.

3.2.5 2.6 GHz Band

3.33 The 2.6 GHz Band is as illustrated below:

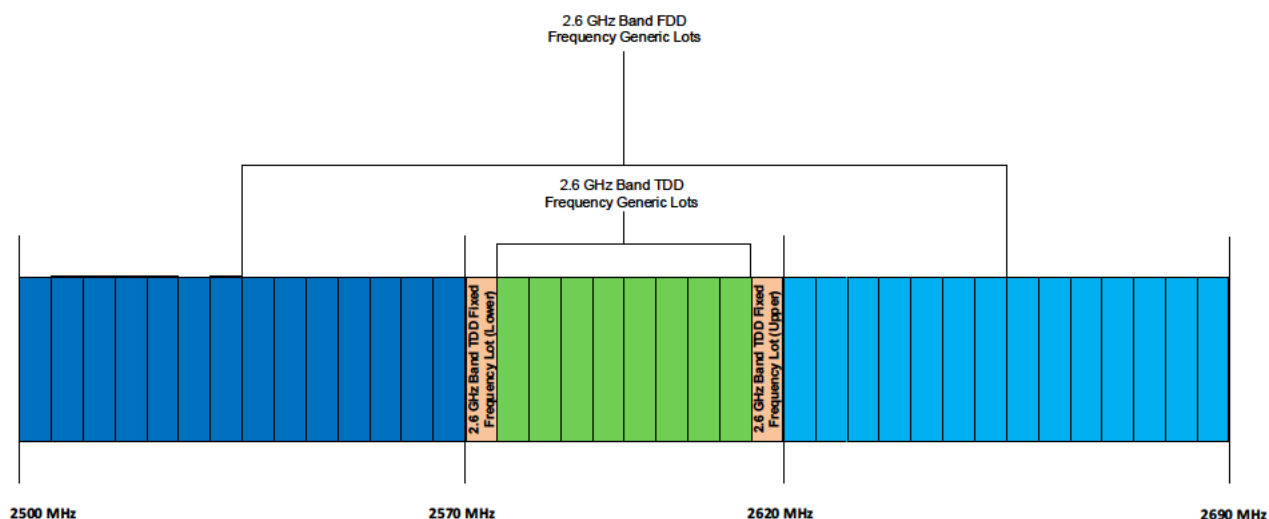


Figure 3. The 2.6 GHz Band

Views received from industry

- 3.34 In summary, Eir Three and Vodafone propose that rights of use are issued for the 2.6 GHz Band, but that operators who are assigned spectrum make application to ComReg for individual sites where they have a need so as to ensure coordination with the neighbouring band which is used by the Irish Aviation Authority (IAA). Operators expect that this band could be particularly useful to serve any temporary medical facilities established during the Temporary Situation.

Consideration of industry views and ComReg's proposals

- 3.35 ComReg notes that the IAA primary radars are a safety of life service and that any use of the 2.6 GHz Band must be permitted in a way that ensures compatibility between both systems (see Annex 5 for IAA initial views).
- 3.36 ComReg is engaging with the IAA in relation to whether the issuing of licences in the 2.6 GHz Band for ECS is acceptable in the circumstances while ensuring compatibility between systems in particular as the IAA primary radars are a safety of life system, acute caution needs to be taken in this regard.
- 3.37 All relevant information available on the compatibility studies previously carried out by ComReg's technical advisors Plum Consulting LLP ("Plum") in ComReg Document 19/124c (the "Plum Report") and as summarised in section 5.2.4 of Document 19/124 will be used to inform this consideration.
- 3.38 ComReg therefore is making provision for the licensing of the 2.6 GHz Band in this document and in the Draft Regulations in Annex 4. However, the issuing of licences for the band will be subject to further consultation with the IAA.
- 3.39 At a minimum, ComReg envisages that the suite of compatibility measures as identified in Document 19/124 will be required to ensure compatibility between ECS and the 4 IAA primary radars (2 in Dublin, 1 in Shannon and 1 in Cork) which include out of band power flux density (*pdf*) levels to address interference due to intermodulation, spurious emissions and blocking in different circumstances will be needed. These compatibility measures are as set out in draft form in Section 2 of Schedule 1 of the Draft Regulations (Annex 4).
- 3.40 In practice, these *pdf* levels result in areas around each of the radars where ECS base stations cannot be deployed. Plum has calculated these areas and they are illustrated in Figures 4.3, 4.5, 4.6 and 5.3 of the Plum Report.
- 3.41 Should ComReg obtain the appropriate clearance from the IAA in relation to the use of the band in these circumstances, ComReg would only issue Temporary ECS Licences in the 2.6 GHz Band, subject to the following conditions:

- Appropriate Evidence being provided as part of the application process;
- that the compatibility measures as set out in Section 2 of Schedule 1 of the Draft Regulations (Annex 4) are met; and,
- that no MFCN deployments would be made within the exclusion zones as identified in Figures 4.3, 4.5, 4.6 and 5.3 of the Plum Report.

3.42 In terms of the assignment and location of frequencies, ComReg would propose to assign spectrum to those applicants that have provided Appropriate Evidence during the application process starting at the lower most blocks working upwards. Further, operators would need to specify the required bandwidth that can be readily used in its application.

3.43 The other licence conditions that would apply to any Temporary ECS Licences in the 2.6 GHz Band are as set out in the Draft Regulations contained in Annex 4 which, in summary, consist of the following:

- the Licence would be technology and service neutral in accordance with the 2.6 GHz EC Decision;
- the Licence would be of a non-exclusive nature; and
- certain technical conditions in accordance with the 2.6 GHz EC Decision.

3.3 Licence Duration

3.44 In considering the appropriate licence duration for the Temporary Situation, ComReg firstly considers the proposals from industry, followed by other relevant factors.

3.3.1 Views submitted by Industry

3.45 Eir, Three and Vodafone proposed that the assignment be temporary and that short term licences should be issued, relevant extracts of their requests are shown below:

*“We now request that ComReg take immediate action to allow operators to use the 700MHz with dedicated allocations for each operator, to allow the use of 2600MHz for specified hotspots and to allow liberalised use of 2100MHz bands for each operator as required **on a temporary basis** to provide additional capacity in their networks.” (emphasis added)*

*“For 700MHz this would take the form of a simple assignment of the spectrum to existing mobile operators through **short term licences**” (emphasis added)*

- 3.46 Further Eir, Three and Vodafone note that once the crisis has passed any rights of use in the 700 MHz Band and 2.6 GHz Band would cease and any liberalisation of the 2.1 GHz Band would revert back to 3G use only:

*“Our request is for **temporary measures** during the national crisis. Once the crisis **has passed as determined by the Minister**, the use of 700MHz, and 2600 MHz will stop and the 2100MHz licences revert to 3G use only.” (emphasis added)*

3.3.2 ComReg consideration of industry views and proposals

- 3.47 ComReg is of the view that any licences issued for the present circumstances should be temporary and only for the duration of the Temporary Situation.
- 3.48 Considering this, ComReg proposes a licence duration of a maximum of 3 calendar months.
- 3.49 ComReg notes that should the Temporary Situation continue for longer than 3 months, the holders of a Temporary ECS Licence may apply for one further Temporary ECS Licence for up to 3 calendar months.
- 3.50 To ensure a clear end date for all Temporary ECS Licences the draft Regulations are being developed to account for this and licences issued under the regulations will be valid for a maximum period of 6 months from the Regulations coming into force.
- 3.51 Should the Temporary Situation continue beyond 6 months, at ComReg’s discretion it may seek to make further regulations to allow for licensing beyond this period.
- 3.52 Factors informing ComReg’s view include that:
- A three month period aligns with other measures being put in place to take account of the Temporary Situation²³;

²³ Mortgage repayments: <https://www.newstalk.com/news/banks-three-month-mortgage-suspension-affected-covid-19-984958>

- A three month period, with the potential for ComReg to grant one further period of up to 3 month would not affect progressing ComReg's long term proposals for these bands;
- A three month period would not adversely affect other users. The 700 MHz and 2.6 GHz Bands are vacant and the existing licensees in the 2.1 GHz Bands are the MNOs themselves; and
- In the USA the Federal Communications Committee has issued Special Temporary Authorisation to three operators for a period of 60 days²⁴.

3.4 Fees

3.53 In considering the appropriate fees for the temporary licences, ComReg firstly considers the proposals from industry, followed by other relevant factors.

3.4.1 Views Submitted by Industry

3.54 Eir, Three and Vodafone proposed the temporary licences should be not be subject to any licence fee or only a nominal one. Relevant extracts of their requests are shown below:

- "There should be no licence fee or only a nominal one".

3.4.2 ComReg Consideration of Industry Views and Proposals

3.55 ComReg first sets out its general approach to spectrum pricing in order to inform its assessment of the Joint Request that proposed that only a nominal fee should apply.

3.56 Regulation 19 of the Authorisation Regulations permits ComReg to impose fees for rights of use which reflect the need to ensure the optimal use of the radio frequency spectrum. ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations.

²⁴ <https://www.fcc.gov/keep-americans-connected>

- 3.57 Spectrum fees for rights of use for Electronic Communications Services (“ECS”) are an important tool by which ComReg can ensure the efficient use of such rights. Efficient spectrum assignment generally requires rights of use to be assigned to those users able to make the best economic use of it, and for the users of the assigned spectrum to make use of it in the way that generates the greatest social benefit. When downstream competition is effective, the objective of achieving the greatest overall benefit from spectrum can be achieved by assigning the spectrum to whoever values it the most.
- 3.58 Such an approach is typically well-supported by charges based on opportunity cost.²⁵ ComReg also notes that such incentives are best maintained by generally applying a consistent and predictable approach to pricing spectrum.
- 3.59 ComReg’s use of Spectrum Usage Fees (SUFs)²⁶ and auctions²⁷ promotes efficient assignment of spectrum and support the general approach of charges for spectrum being determined by opportunity cost. The use of ongoing SUFs provides incentives for those not making full use of spectrum to return it to ComReg, or trade or lease it to alternative uses. Competitive auctions elicit the value of spectrum to those bidders who fail to acquire it. Within auctions, spectrum valuations of bidders will take into account anticipated SUFs. Prices determined in auctions are typically charged as Spectrum Access Fees (SAF), which are usually one-off payments linked to licence award. However, together SUFs and SAFs implement spectrum charging based on opportunity cost.
- 3.60 The effects of not charging spectrum access or usage fees (or a nominal fee) as suggested by the Joint Request are assessed in turn below in light of the circumstances surrounding the Temporary Situation.

3.4.3 Spectrum access fees

- 3.61 The 2.1 GHz Band is already assigned to the three MNOs and therefore there are no other users that could make more efficient use of temporary liberalised rights of use in the 2.1 GHz Band in the short-run. Therefore, the opportunity cost associated with temporary liberalised rights is likely zero.

²⁵ The opportunity cost of spectrum usage refers to the value of the next best use of the spectrum. This is defined by the value of (and willingness to pay for) the spectrum to potential users other than those licenced to use the spectrum. If a potential user is not willing to pay this foregone value, then it is not efficient to award it spectrum, as there is an alternative user that could create more value from the spectrum.

²⁶ See Regulation 17(10) of the Framework Regulations, Recital 71 of the 2009 Amending Directive.

²⁷ ComReg does not favour any one process for assigning new rights of use of spectrum as a matter of principle; it decides the most appropriate process in each individual case. In this regard, the main methods are market mechanism and administrative assignment. For harmonised bands, ComReg normally conducts a Regulatory Impact Assessment to determine the appropriate method. See Annex 6, Document 19/124.

- 3.62 In relation to the remaining bands, eliciting information about opportunity costs to determine the most efficient users is not practical given current circumstances. However, ComReg is currently of the understanding that only MNOs have existing base station equipment²⁸ capable of delivering services over the duration of the Temporary Situation.²⁹ Therefore, MNOs are also likely to be the most efficient users of the liberalised rights of use over that duration. Further, assignment of rights of use by ComReg would be based on the justified need for those rights of use to alleviate capacity concerns³⁰ over the period of the Temporary Situation.
- 3.63 Finally, the assignment of rights of use in the Proposed Bands is exceptional and temporary in nature and should be contrasted with long term rights of use (20 years) to be determined separately in the Proposed Multi-Band Spectrum Award³¹. Long-term rights of use are likely to have a much higher opportunity cost associated with them; other excluded users might have planned to make associated network investments given long-term rights and so are likely to have significant value for the spectrum. Therefore, issuing temporary licences of very short duration with no or minimal charges is compatible with ComReg's typical approach of opportunity-cost based charges.

3.4.4 SUFs

- 3.64 ComReg notes that the current 2.1 GHz licences are already subject to SUFs designed to encourage their efficient use. In particular, each MNO is subject to an annual SUF of €1,904,610 for 2x15 MHz of 2.1 GHz³² spectrum use in each licence³³. Further, ComReg notes its preliminary view (Document 19/124) that it would not apply any additional fees for liberalisation of existing 2.1 GHz licences for the period up until 15 October 2022. Therefore, there would appear to be no basis to levy additional fees for temporary liberalised 2.1 GHz rights of use in the current circumstances.

²⁸ ComReg understands from a previous assessment of the apparatus specified in MNO licences that the base station equipment (base transceiver station and antennas) are primarily multi-band and would cover 700 MHz and 2.1 GHz to some extent. See draft 'Spectrum for Award' RIA – Annex 6 – Document 19/124.

²⁹ For the avoidance of doubt, non-incumbent users may be more efficient users of the radio spectrum over periods of longer duration such as the 20 year period proposed in the Proposed MBSA.

³⁰ Such needs as are to be identified in the application process.

³¹ <https://www.comreg.ie/industry/radio-spectrum/spectrum-awards/proposed-multi-band-spectrum-award/>

³² "in respect of each 2 x 5 MHz in the 1920-1980 MHz and 2110-2170 MHz bands, a Licence fee of €634,870." Per regulation 11(3)(a) of S.I. No. 340/2003 (the "2.1 GHz Regulations"): <http://www.irishstatutebook.ie/eli/2003/si/340/made/en/print>

³³ Eir is also subject to Spectrum Access fees of €7.6million and €9.1million in the next two years.

- 3.65 In relation to other bands and as already noted above, opportunity costs associated with the Temporary Situation are likely to be minimal so there is no basis for significant SUFs to be levied. Furthermore, the optimal use of the radio spectrum is likely to be provided for during the Temporary Situation for a number of other reasons:
- ComReg will be asking the applicant to confirm that the spectrum rights applied for can be readily used, and to provide sufficient supporting material in respect of same (See the proposed application process above);
 - Concerns about spectrum hoarding are not relevant, as rights of uses are of very short duration and there are no alternative uses over the period;
 - ComReg will maintain a running list of sites where sufficient capacity / coverage is to be provided to support the Temporary Situation (See Section 3.2 above); and
 - The significant changes to the normal traffic levels and patterns of the electronic communications networks (“ECNs”) in Ireland as identified by MNOs (See Para 1.3) and the assessment of likely needs of consumers during the Temporary Situation provides a good basis for determining that those MNOs would make optimal use of the spectrum that generates the greatest social benefit during the Temporary Situation.
- 3.66 Finally, in setting out a procedure for setting spectrum fees during the Temporary Situation that is consistent with its relevant statutory functions, duties and objectives, ComReg does not wish to adversely affect the extent to which certain services which are important to society during the Temporary Situation are provided. ComReg also does not wish to reduce incentives to protect such services to the benefit of consumers during the Temporary Situation and where the impact would likely be largely neutral in terms of any potential effects on competition (see impact on competition below).
- 3.67 In light of the above, ComReg is of the view that the optimal use of the radio spectrum could be ensured without needing to rely on spectrum usage fees and that a nominal fee of €100 would be appropriate for Temporary ECS Licence(s).

3.5 Coverage / Capacity at specific locations

3.5.1 Views submitted by Industry

3.68 ComReg notes the proposals from Eir, Three and Vodafone in relation to the Temporary Situation, in particular their willingness to do everything in their power to prevent network congestion and also to provide services to medical facilities:

“Each network has already seen growth in traffic. It is essential that we all do everything that is feasible to keep the networks operating at this time, and in particular in the coming weeks when it is expected that matters might even deteriorate. We need to prepare our networks to cope with further increases in demand, and to also relieve any localised congestion wherever we can.”

“The next item to examine is the radio spectrum that we use, as changes in this area could help to substantially increase network capacity, particularly in targeted/congested areas.”

“We envisage this [the 2.6 GHz Band] being particularly useful to serve any temporary medical facilities established during the current crisis.”

3.5.2 ComReg consideration of industry views and proposals

3.69 ComReg proposes to attach coverage obligations to licences due to the evolving nature of this Temporary Situation and will maintain a running list of areas where sufficient capacity / coverage is to be provided to support the medical and broader emergency services response to the Temporary Situation.

3.70 The Government is best placed to identify these locations and these locations may consist of the repurposing of existing buildings or the establishment of temporary structures or locations for the purposes of the Temporary Situation.

3.71 ComReg proposes to update this list and make it available on its website with the guidance of DCCA. In the first instance, this list could include:

- all public and private hospitals, including any temporary hospitals or other treatment facilities which may be established;
- any quarantine facilities which may be established;
- Covid-19 testing facilities;
- Garda stations / fire stations; and

- any other locations which may be specified by Government in relation to the Temporary Situation.

3.6 Other actions that could be taken

3.72 ComReg notes that the proposed measures may allow MNOs to temporarily offer consumers flexibility in accessing services over the period through a variety of measures (e.g. increase data caps /call minute allowances etc.). In this regard, ComReg would encourage MNOs to consider same.

3.6.1 Leasing of existing rights of use that are not used to facilitate other operators during the present circumstances

3.73 ComReg notes that existing operators may have existing rights of use that are not being used and that this spectrum could be utilised by other operators that have equipment readily available. For example, in the 3.6 GHz Band there are licensees that currently have none or very limited deployments using their spectrum rights of use at this time (e.g. Three). This spectrum could be used by operators during the Temporary Situation for the greater benefit of consumers.

3.74 ComReg would encourage and look very favourably on any lease arrangement that would be put in place during this period and ComReg notes that the key elements of the Temporary ECS Licence set out in this document, for example, 6 month licences for a nominal fee could be used as a reasonable proxy for any such lease.

3.6.2 Potential to assign rights in the 2.3 GHz Band

3.75 ComReg notes that no request was made for temporary access to rights of use in the 2.3 GHz Band and, as such, the band is outside the scope of this consultation. However, should operators have the ability and requirement to make use of the spectrum rights of use on a temporary basis for the purposes of addressing network congestion issues that may arise due to the Temporary Situation, they are invited to submit their views in that regard (see Chapter 6 below) and to provide appropriate supporting evidence (see e.g. paragraph 2.4 and Section 3.2).

3.76 Should ComReg receive any such submission, ComReg would consider proposals in this regard in a similar way to that identified above.

Chapter 4

4 ComReg's assessment of Proposed Approach

4.1 Framework for assessing the Proposed Approach

- 4.1 Annex 2 of this Document summarises the relevant statutory framework informing ComReg's consideration of the approach set out in Chapter 3 ("the Proposed Approach").
- 4.2 Before turning to its assessment, ComReg firstly addresses some preliminary matters below.
- 4.3 **First**, ComReg is of the view that there is an overriding public interest imperative to act quickly. Moreover, given the short term nature of the rights of use proposed to be assigned and that any assignment of rights of use by ComReg would be based on the justified need for those rights of use to alleviate capacity concerns³⁴ during the Temporary Situation there is limited scope for the Proposed Approach to result in an accumulation of rights of use that could create distortions to competition.
- 4.4 **Second**, ComReg notes that in light of the fact that the Proposed Approach does not involve amendments to existing licences or significant obligations for temporary liberalised rights of use, ComReg does not believe it necessary to conduct a formal Regulatory Impact Assessment ("RIA") in the present circumstances.³⁵
- 4.5 That said, the potential implications of the Proposed Approach on competition and consumers are considered in the context of relevant aspects of ComReg's relevant functions objectives and duties.
- 4.6 ComReg's substantive assessment is set out below under the following headings.
- Impact on consumers;
 - Impact on competition; and

³⁴ Such needs as identified by Applicants in the Application Form – Annex 3.

³⁵ See ComReg's RIA Guidelines for further details (Document 07/56a).

- Assessment of Proposed Approach against ComReg's relevant functions, objectives and duties.

4.2 Impact on consumers

4.7 The outbreak of Covid-19 has changed the way society carries out a variety of social and economic activities. In particular, over the coming months, and in light of social distancing measures announced by the government³⁶, consumers are likely to primarily work and engage with society online and/or over the phone during the Temporary Situation. The ability to make or receive voice calls and access services over the internet (particularly indoors) is likely to be of significant importance and a key priority for consumers over the period.

4.8 Voice and internet services are provided to consumers through a variety of fixed and wireless alternatives and in many cases the primary means of accessing these services will be through a fixed line connection. However, ComReg notes the following key points in relation to how voice and internet services are provided wirelessly:

- Around half of households do not have a fixed line **voice connection** and would primarily rely on mobile networks (which has close to full population penetration) to make voice calls³⁷;
- Around 20% of households primarily rely on wireless means to provide **internet access**³⁸ to the household.

4.9 Many of these consumers³⁹ are unlikely to have an alternative means of making calls or connecting to the internet in the event of mobile network outages or quality of service degradation caused by increased demand on the network. Congestion will also be more relevant for mobile networks which are dimensioned for normal circumstances with users primarily accessing the mobile network from different areas and at different times (home and its environs rather than their place of work and its environs).

4.10 The remainder of this section is set out as follows:

³⁶ <https://www.gov.ie/en/publication/472f64-covid-19-coronavirus-guidance-and-advice/>

³⁷ Mobile Consumer Experience Survey 2019, Document 19/101, slide 22.

³⁸ This is an estimate based on Consumer FVCT Market Research, Document 17/90a, (slide 19), the Mobile Consumer Experience Survey 2019 and ComReg's Quarterly Key Data Report Q4 2019, Document 20/15.

³⁹ Consumers with both fixed and mobile connections in the same household are also likely to be impacted by increased surges in demand, although the impacts are somewhat less given the possibilities of using alternatives in the event of disruption to either.

- **First**, ComReg assesses consumer's likely views in relation to the provision of voice services during Temporary Situation ("Voice Services").
- **Second**, ComReg assesses consumer likely views in relation to the provision of data services during Temporary Situation ("Data Services").
- **Third**, ComReg assesses consumer's likely views on whether the Proposed Approach would be appropriate ("Proposed Approach").

4.2.1 Voice Services

4.11 The need for mobile networks to provide a reliable voice service is particularly heightened in the current circumstances given that nearly half the population would be reliant to some extent on mobile networks to provide voice connections. ComReg also notes that 10% of households do not have internet access of any kind^{40 41} and such households would be entirely reliant on accessing essential services over the phone during Temporary Situation.

4.12 In that regard, consumers may require access to a variety of essential and non-essential services during the Temporary Situation. For example:

- In order to prevent the spread of Covid-19, citizens are encouraged to contact their GP **over the phone**⁴² where they are assessed by the GP for potential infection.
- Many medical facilities now have signs outside their doors requesting those attending to contact reception **over the phone** before entering. Such calls must obviously be made using the mobile network⁴³.
- In order to reduce unnecessary face to face interaction in the workplace, the government is encouraging that meetings be done remotely or **over the phone**.⁴⁴
- Hospitals are advising family and friends to contact inpatients by using landlines, or through the use of **mobile phone telephone** or video

⁴⁰ <https://www.cso.ie/en/releasesandpublications/ep/p-isshh/informationstistics-households2019/householdinternetconnectivity/>

⁴¹ Ibid - 52% reported that the reason for no access was that they *Do not need internet*. Just over four in every ten (42%) reported *Lack of skills* as a reason for not having household internet access

⁴² <https://www2.hse.ie/conditions/coronavirus/travel-and-coronavirus.html>

⁴³ <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/posters/Primary%20Care%20Front%20Door%20V2.pdf>

⁴⁴ <https://www.gov.ie/en/speech/5a280b-statement-by-an-taoiseach-on-measures-to-tackle-covid-19-washington/>

calling apps (such as Face Time, WhatsApp video calling, etc.) until these visiting restrictions are lifted.⁴⁵

- In line with its social distancing measures, the Government is encouraging people to contact family and friends online or **over the phone**^{46 47}.
- The Health Service Executive (“HSE”) notes a variety of services (e.g. mental health services) will be conducted **over the phone** as it may not be possible to get face to face appointments. Alternatively, the HSE point to a number of service providers that offer online and phone mental health supports and services⁴⁸.

4.13 This likely increased reliance on voice services is consistent with the views of MNOs, some of whom have reported significant daily increases in voice traffic (see Para 1.3). This is also consistent with the experience in other jurisdictions that have report increases in the use of voice calls⁴⁹. For example:

- Telefonica in Spain reported that when the pandemic was declared and workers and schoolchildren were sent home, mobile voice traffic immediately rose between 40 and 45 per cent⁵⁰.
- Telefonica in the UK reported that the number of phone calls made over the network surged 50 per cent in one day which was the equivalent to seven years of growth.⁵¹
- AT&T in the United States reported that voice calls on Sunday 22 March increased 44 per cent compared to a regular Sunday⁵².

⁴⁵ [https://www.materprivate.ie/news-events/news/coronavirus-\(covid-19\)-ma/](https://www.materprivate.ie/news-events/news/coronavirus-(covid-19)-ma/)

⁴⁶ <https://www.hse.ie/eng/services/news/newsfeatures/covid19-updates/partner-resources/covid-19-information-booklet.pdf>

⁴⁷ <https://www2.hse.ie/wellbeing/mental-health/minding-your-mental-health-during-the-coronavirus-outbreak.html>

⁴⁸ <https://www.hse.ie/eng/services/list/4/mental-health-services/connecting-for-life/news/supports-and-services-during-covid-19.html>

⁴⁹ <https://www.mobileworldlive.com/featured-content/top-three/pandemic-spurs-voice-resurgence-in-us>

⁵⁰ <https://www.ft.com/content/dd5fadb8-6acc-11ea-800d-da70cff6e4d3>

⁵¹ *Ibid*

⁵² <https://www.mobileworldlive.com/featured-content/top-three/pandemic-spurs-voice-resurgence-in-us>

- 4.14 Further, such calls would likely involve longer than normal duration⁵³ and may involve call queuing/waiting where dropped calls could be particularly harmful to consumers. Currently, the biggest service issues consumers experience in relation to mobile voice calls are around the quality of reception deteriorating when on a call, not being able to make a call, not being able to receive a call and dropped calls. Consumers would therefore welcome measures that would reduce the likelihood of such issues arising during the Temporary Situation.
- 4.15 Therefore, ComReg is of the preliminary view that consumers are likely to have increased need for mobile voice services during the Temporary Situation, particularly in relation to essential services.

4.2.2 Data services

- 4.16 Given the relevance of voice, it is important to note that reliable data services also play an important role in the provision of mobile voice services which reduces the load on mobile voice networks. For example:
- Certain MNOs (i.e. Vodafone) are already providing VoLTE (i.e. 4G calling) and liberalised rights of use would increase the capacity for same.
 - Consumers can make certain longer voice/video calls of a more social nature using unmanaged VOIP⁵⁴ regardless of the technology used to deliver data (i.e. 3G, 4G, and Fixed).⁵⁵
 - Native Wi-Fi calling is enabled for both Eir and Vodafone and this has potential to significantly reduce the load on mobile voice networks while retaining a high quality of service (which may not be the case for unmanaged VOIP).

⁵³ The number of phone calls made over the O2 mobile network surged 50 per cent in one day which was the equivalent to seven years of growth in that day. It saw 160m calls lasting an average seven minutes, 40 per cent longer than normal.

⁵⁴ Unmanaged VoIP services are web-based VoIP services accessed via a personal computer, laptop, smartphone or tablet in order to communicate with other users of the service on a compatible device. Unmanaged VoIP service providers include Skype, Viber and WhatsApp.

⁵⁵ For example, the Joint Request noted that “We also see customers (consumer and business) using OTT collaboration tools driving increased.”

- 4.17 More generally, ComReg notes that fixed line services (DSL & Fibre etc.) will provide broadband connectivity for large parts of the population and which will be important in the delivery of mobile voice services through technologies such as Wi-Fi calling. However, around 20% of the population rely primarily on wireless services for the delivery of essential services online during Temporary Situation. Further, a mobile broadband internet connection is most common in less affluent households⁵⁶ who may have a greater requirement for essential services over the period.
- 4.18 In that regard, ComReg notes that a number of online services linked to the Temporary Situation are likely to be important to consumers in the coming months. For example:
- Government has now urged all employers to support national public health objectives and consider a range of flexible working arrangements with their employees such as allowing employees to **work remotely**⁵⁷. For example:
 - In the last two weeks, VPN usage increased by 160% in Italy, 58% in Spain and 40% in Germany.⁵⁸
 - Cisco has seen a 7-fold increase in use of its Webex video conferencing platform in impacted countries during recent weeks.⁵⁹
 - The government announced the closure of schools, pre-schools and further/higher education settings to support efforts to contain the spread of Covid-19⁶⁰. In order to minimise the impact on teaching and learning all schools will be asked to continue to plan lessons and, where possible, provide online resources for students or **online lessons** where schools are equipped to do so.⁶¹
 - The Health Service Executive (“HSE”) introduced a portal that allows GPs and primary-care providers to easily offer patients a range of

⁵⁶ <https://www.cso.ie/en/releasesandpublications/ep/p-isshh/informationssocietystatistics-households2019/householdinternetconnectivity/>

⁵⁷ <https://www.gov.ie/en/publication/a02c5a-what-is-happening/>

⁵⁸ <https://atlasvpn.com/blog/lockdowns-and-panic-leads-to-a-124-surge-in-vpn-usage-in-the-us/>

⁵⁹ <https://blog.webex.com/video-conferencing/cisco-webex-supporting-customers-during-this-unprecedented-time/>

⁶⁰ <https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/12-march-2020-statement-from-the-department-of-education-and-skills.html>

⁶¹ *ibid*

essential services, including **online bookings**, a **video consultation service**, secure messaging and form completion to assist in triaging.⁶²

- The “Department of Employment Affairs and Social Protection (‘DEASP’) provides information about income support for people impacted by coronavirus **online and over the phone**,⁶³. The Department of Employment Affairs and Social Protection has experienced unprecedented demand for income supports since 13 March with the level of demand equating to 10 months normal claim-load in just 10 working days.⁶⁴

4.19 ComReg also notes that non-essential services⁶⁵ which consume large amounts of bandwidth (i.e. online streaming, YouTube, Netflix, Amazon Prime etc.) are also likely to be in large demand⁶⁶ as household social activities will be increasingly provided online during the Temporary Situation. In that regard, providing sufficient capacity for all services is likely to be the main method of reasonably ensuring that essential services can be reliably accessed online during the Temporary Situation.

4.20 This likely increased reliance on online services is consistent with the views of MNOs who have reported significant increases in data traffic (See Para 1.3). This is also consistent with other jurisdictions which have reported a significant increase in data traffic⁶⁷.

4.21 Therefore, ComReg is of the preliminary view that consumers are likely to have increased need for mobile data services over the period of the Temporary Situation, particularly in relation to essential services.

4.2.3 Views on Proposed Approach

4.22 In light of the above, consumers are likely to favour any approach that would reduce the potential for service issues associated with the provision of voice and data.

⁶² <https://www.irishtimes.com/business/health-pharma/new-covid-19-online-portal-allows-gps-to-treat-patients-remotely-1.4205959>

⁶³ https://www.citizensinformation.ie/en/health/covid19/covid19_and_older_people.html

⁶⁴ <https://www.gov.ie/en/publication/66d22e-covid-19-deasp-information-for-employers-and-employees-pdf/>

⁶⁵ ComReg recognises that with increased social isolation, such services likely contribute to the wellbeing of consumers.

⁶⁶ In recognition of this point, Netflix has already reduced its bitrates in Europe for thirty days, resulting in a 25% reduction of its traffic. YouTube will temporarily switch to standard definition by default https://ec.europa.eu/commission/presscorner/detail/en/mex_20_498

⁶⁷ <https://www.mobileworldlive.com/featured-content/top-three/pandemic-spurs-voice-resurgence-in-us>

- 4.23 As set out in Chapter 3, ComReg's proposals can be summarised as follows:
- a) Make available temporary 2.1 GHz liberalised rights of use in a Temporary ECS Licence on a national basis on foot of justified request in accordance with the application process.
 - b) Make available temporary 700 MHz Duplex liberalised rights of use in a Temporary ECS Licence on a national basis on foot of justified request in accordance with the application process.
 - c) Potentially make available temporary 2.6 GHz liberalised rights of use in a Temporary ECS Licence outside certain exclusion zones subject to confirmation with the IAA that this is acceptable in the circumstances and on foot of justified request in accordance with the application process.
 - d) Remain open to consulting on making available temporary 2.3 GHz liberalised use licences on foot of justified request.
- 4.24 As set out in Section 3.2.1 there is already a high level of handset compatibility with each of the bands such that consumers would be able to benefit from the temporary release of same for the duration of the Temporary Situation.
- 4.25 **In relation to (a)**, consumers are likely to prefer LTE 2100 (4G) over existing UMTS 2100 (3G) for the duration of the Temporary Situation, as it is able to provide higher quality mobile data services. In particular, the upgrade of sites to LTE 2100 would facilitate the delivery of the following consumer benefits:
- Higher speeds, improving the quality of activities such as streaming video and web surfing on mobile devices.
 - Greater capacity compared to 3G networks, allowing larger numbers of customers to receive a given quality of service.
 - Reduced latency, a key feature that improves the responsiveness of real-time services such as videoconferencing, VoIP and gaming.
 - Greater spectral efficiency, allowing services to be delivered using the same amount of spectrum means more data can fit into a specific amount of spectrum.
- 4.26 The availability of LTE 2100 will also provide operators with flexibility to dimension their network in order to improve the provision of both voice and data services. For example:

- Vodafone currently has the capability to provide VoLTE (i.e. 4G calling)⁶⁸ where LTE 2100 would be particularly helpful in rolling out these services more widely for the purpose of the Temporary Situation.
- Both Vodafone and Eir have already rolled out Native Wi-Fi calling and encouraging the use of same on fixed connections should significantly reduce the voice load on mobile networks.
- Given the synergy between the deployment of VoLTE and Native Wi-Fi (both use the same underlying SIP/IMS technology) this could provide Eir with the opportunity to also provide 4G calling for the purpose of the Temporary Situation.
- Three currently has 2 x 30 MHz in the 2.1 GHz Band and because LTE 2100 is more spectrally efficient this would allow Three more flexibility to allocate spectrum resources between voice and data services.

4.27 Further, the three MNO's have rolled out unliberalised 2.1 GHz across a wide area of the State⁶⁹ and, ostensibly at least, liberalisation could be implemented relatively quickly across a number of those sites⁷⁰. Liberalisation would remove certain technology restrictions and provide a number of technical benefits that could potentially result in (a) higher speeds and (b) increased capacity⁷¹, and (c) greater network resilience in the face of increased and atypical demand patterns.

4.28 Therefore, consumers are likely to welcome the temporary liberalisation of the 2.1 GHz Band for the period of the Temporary Situation.

⁶⁸ <https://n.vodafone.ie/support/bill-pay-hub/bill-pay/wi-fi-calling.html>

⁶⁹ See Document 19/59R - Table 19 'Number of licensed sites in 1800 MHz and 2.1 GHz Band of the existing MNOs'

⁷⁰ ComReg understands that liberalisation of the 2.1 GHz Band can be conducted remotely via a software upgrade for a number of sites but this will depend on what type of equipment has been installed on relevant sites.

⁷¹ See Annex A8.18 'Spectrum Liberalisation RIA' – Document 19/124.

- 4.29 **In relation to (b)**, ComReg first notes that mobile data traffic that might normally occur outdoors is now taking place indoors and as a result almost all the data and voice traffic generated will be made indoors for the period of the Temporary Situation. In that regard, the Mobile Consumer Experience 2019 shows that certain households already have QoS issues indoors⁷² and the additional need for internet and voice connectivity would likely cause further issues over the period of the Temporary Situation. For example:
- 34% of households report service issues for **data** indoors⁷³ rising to 53% in more rural areas.⁷⁴
 - 33% of households reported **voice** service issues indoors, rising to 54% in more rural areas.⁷⁵
- 4.30 The 700 MHz Duplex is likely to be particularly relevant in terms of providing rural coverage and improving building penetration given that its strong propagation qualities support more cost-effective approaches to the coverage of distributed and rural populations. Noting also that the assignment of the 700 MHz Duplex, while particularly suited for rural deployments, would provide additional capacity wherever it is deployed in addition to the other bands already providing capacity.
- 4.31 Therefore, consumers are likely to welcome the temporary assignment of 700 MHz Duplex rights of use for the period of the Temporary Situation.
- 4.32 **In relation to (c)**, ComReg notes that the temporary release of the 2.6 GHz Band would involve similar technical benefits to (a). However, no deployments would be allowed within the exclusion zones, which includes the main cities where 2.6 GHz would typically be used to provide additional capacity. Therefore, while consumers are likely to welcome the assignment of the 2.6 GHz Band on a temporary basis the benefits to households will be minor.

⁷² The conditions for receiving a mobile signal indoors can vary significantly between buildings and even between rooms within a single building. This is particularly pertinent for the provision of indoor connectivity service in light of the significant detrimental effect that building materials (such as windows, insulation, block and roofing materials) can have on the propagation of radio waves into buildings.

⁷³ Document 19/101 'Mobile Consumer Experience Survey 2019' Slide 81.

⁷⁴ Ibid

⁷⁵ Ibid, slide 74.

- 4.33 **In relation to (d)**, ComReg notes that the 2.3 GHz Band may be suitable for other operators in delivery of related services (e.g. Fixed Wireless)⁷⁶ given the availability of large amounts of contiguous bandwidth. While not within the scope of this consultation, if other operators are experiencing network congestion arising from the Temporary Situation, the assignment of the 2.3 GHz Band may be helpful in limiting same. Therefore, consumers are likely to welcome the assignment of 2.3 GHz rights of use on a temporary basis for the period of the Temporary Situation where a justified request is made for same.
- 4.34 More generally, ComReg notes that consumers are likely to prefer the Proposed Approach compared to other alternatives to mitigate network disruption. For example, measures that involve additional sites and infrastructure are unlikely to be timely. Further, other alternatives, including, throttling of service, reductions in data allowances etc. may ultimately harm consumers. Conversely, ComReg notes that the proposed measures may allow MNOs to temporarily offer consumers flexibility in accessing services over the period through a variety of measures (e.g. increase data caps /call minute allowances etc.)^{77 78}
- 4.35 ComReg also notes that while consumers would likely welcome the Proposed Approach, this would be predicated on rights of use expiring within 6 months. Consumers would likely prefer long term rights of use, beyond the period of the Temporary Situation, to be assigned in an open competitive award such as the Proposed Multi-Band Spectrum Award.⁷⁹ This would have the most positive impact on downstream retail competition in the long run and should therefore promote the interests of consumers in terms of the choice, price, and quality of electronic communications services.
- 4.36 Finally, the Proposed Approach would also provide additional protections in the event of any additional government measures in the future, for example the restriction of people's movement to the home which would further increase the

⁷⁶ For the avoidance of any doubt liberalised rights of use in the 700 MHz Duplex and 2.1 GHz Band are being made available to operators based on a justified request which is likely to be MNOs for a number of pertinent reasons including:

- the 700 MHz Band would not be compatible with existing equipment rolled out for other networks.
- the 2.1 GHz Band is already assigned to MNOs and the Proposed Approach relates to liberalisation rather than the assignment of additional spectrum rights of use.

Conversely, the 2.3 GHz Band is not currently assigned and may be useful for a variety of different users and their networks therefore ComReg will consider justified requests for temporary use of same.

⁷⁷ <https://www.telecomtv.com/content/coronavirus/swiss-telco-lifts-mobile-data-caps-to-help-its-customers-weather-the-virus-38092/>

⁷⁸ <https://www.rcwireless.com/20200316/carriers/carriers-respond-covid-19-us>

⁷⁹ <https://www.comreg.ie/industry/radio-spectrum/spectrum-awards/proposed-multi-band-spectrum-award/>

load on mobile networks.⁸⁰

4.3 Impact on competition

4.37 ComReg's assessment on the impact of competition is set out in the following two sections

- **First**, ComReg assesses whether assignment of additional liberalised rights of use raises the potential for the creation of distortions to downstream competition ("Accumulation of rights of use").
- **Second**, ComReg assesses whether the current need for additional capacity could impact Quality of Service (QoS) standards such that competition would be promoted through the temporary assignment of liberalised rights of use for the period of the Temporary Situation ("QoS standards").

4.3.1 Accumulation of rights of use

4.38 The assignment of additional liberalised rights of use raises the question of whether the accumulation of spectrum rights (even temporary) could distort downstream competition⁸¹

4.39 First, as noted above, any temporary assignment of rights of use arising from the Proposed Approach would be based on a justified need to alleviate capacity concerns⁸² on existing infrastructure over a short period⁸³ rather than attempts to obtain a material advantage over rivals in the longer run or denying rival operators with the opportunity to reduce disruption on their network.

4.40 Notwithstanding, ComReg is of the preliminary view that any MNO would be unlikely to be able to obtain a material advantage over rivals through the temporary assignment of liberalised rights of use for a number of reasons.

⁸⁰ For example, in Italy since the announcement of a full lockdown there has been a three-fold increase in the use of video conferencing, which, alongside streaming and gaming, drove a 75 per cent rise in residential data traffic across broadband and mobile networks since enacting additional lockdown measure, according to Telecom Italia.

<https://www.ft.com/content/b4ab03db-de1f-4f98-bcc2-b09007427e1b>

⁸¹ Regulation 9(11) obliges ComReg to consider whether any accumulation of spectrum rights would distort competition.

⁸² Such needs as identified by Applicants in the Application Form – Annex 3.

⁸³ The Joint Request specified that where operators have capable equipment in place the spectrum can be quickly enabled by way of software upgrade. However, each operator would need to communicate individually to ComReg regarding their own ability to deploy spectrum in one or more bands.

- Any liberalised rights of use granted on foot of the Proposed Approach would be temporary and for the period of the Temporary Situation only.
- All MNOs would have the opportunity to be assigned liberalised rights based on a justified request. To the extent that any operator did not request liberalised rights of use, it is likely to be based ⁸⁴ on the view that it already has sufficient capacity in which case other MNOs are unlikely to be able to have a material advantage relative to it.
- Any MNO is unlikely to have the ability or incentive to exploit temporary liberalised rights of use to such an extent that it would obtain a material advantage⁸⁵ over rival operators for a number of reasons including:
 - the amount of time for the benefits of exploiting the additional spectrum rights of use to be realised would likely take significantly longer than the duration of the temporary licence.
 - even if such benefits were realised, the ability to switch or attract new customers is severely restricted at present given social distancing measures, including the closure of non-essential retail outlets. In relation to online sales, some of the more popular handsets are currently only available to purchase in store⁸⁶ and not all models are necessarily in stock.
 - it is also uncertain how extensively such an MNO would choose to deploy temporary rights of use in advance of certainty regarding its long-term holdings following the proposed MBSA.
 - any significant rollout of temporary rights of use beyond existing infrastructure, prior to the proposed MBSA would risk inefficient investment, if lesser, or no, rights of use were subsequently assigned in that award.

4.41 Further, as noted above, the 2.3 GHz Band may be suitable for the delivery of Fixed Wireless services given the availability of large amounts of contiguous bandwidth. Therefore, to the extent that such operators are experiencing network congestion arising from the Temporary Situation, after due consultation the assignment of the 2.3 GHz Band may be helpful in limiting same and

⁸⁴ ComReg understands from a previous assessment of the apparatus specified in MNO licences that the base station equipment (base transceiver station and antennas) are primarily multi-band and would cover 700 MHz and 2.1 GHz to some extent. See draft 'Spectrum for Award' RIA – Annex 6 – Document 19/124.

⁸⁵ Liberalisation should provide a number of technical benefits that would result in (a) higher speeds and (b) increased capacity. Further

⁸⁶ <https://n.vodafone.ie/shop/offers/pay-as-you-go-offers.html>

preventing any distortions arising in the provision of Fixed Wireless services.

4.42 In light of the above, ComReg is of the preliminary view that liberalisation of temporary rights of use is unlikely to confer a material advantage on any MNO over the period of the Temporary Situation. ComReg again notes that any assignment of temporary rights of use would need to be based on a justified need to alleviate capacity concerns.

4.3.2 QoS standards

4.43 ComReg is of the preliminary view that the potential for network disruption caused by increased demand for services during the Temporary Situation could impact the QoS provided by some or all MNOs creating distortions to competition in the long run (i.e. the period after the Temporary Situation is over). QoS is an important aspect of competition and represents a key non-price consideration that determines how consumers choose their service provider and/or switch away from existing providers. For example:

- 27% of consumers reported that their selected network had a 'Good reputation'.⁸⁷
- 15 % of respondents heard that there is good coverage/signal quality in their area.⁸⁸
- 7% of respondents heard that the coverage/signal/quality of other operators in their area is poor/unreliable.⁸⁹
- The main reason for switching from an operator is network coverage/reliability 30%.⁹⁰

4.44 Clearly, any impact on the quality of service of particular operators could have impacts on long run competition particularly if such impacts are caused by issues that would not persist in the long run and affected some operators more than others during the Temporary Situation. In particular, each of the MNO networks are dimensioned differently⁹¹ in line with traffic patterns in different

⁸⁷ Document 19/101 'Mobile Consumer Experience Survey 2019' Slide 38

⁸⁸ Ibid

⁸⁹ Ibid

⁹⁰ Market Review Fixed Voice Call Termination and Mobile Voice Call Termination – Document 19/47, Para 4.95.

⁹¹ As an operator rolls out a network, the location of base stations will be dictated mainly by factors such as the level and extent of coverage the operator is trying to achieve, its commercial strategy and by forecasts of demand for services the network is expected to support; it will also, to some extent, be constrained by the availability of suitable sites and by topological constraints such as the geographical terrain the network is going to serve.

geographic areas and commercial strategies.⁹²

- 4.45 A network dimensioned for particular traffic patterns may not guarantee the required grade of service when the traffic patterns change or in this case change substantially. To some extent, operators would have certain contingency to cope with changing traffic patterns or surges in demand for special events.⁹³ However, in the present circumstance, ComReg notes that the change in traffic pattern currently experienced by operators is over a sustained period and could not be considered a change which could have been considered under a normal state of competition.
- 4.46 Typically, issues around QoS are caused by temporary outages/surges in specific geographic areas and affect a comparatively small number of people at a given time. However, the current circumstance means that large numbers of consumers could become dissatisfied over a relatively short period. In particular, given the more **urgent nature** of some of these voice and data services (see Impact on consumers above) some consumers may become highly dissatisfied in the event of network congestion over the period of Temporary Situation.
- 4.47 While these issues would likely affect each operator to some degree, because networks are dimensioned differently, it could affect some operators more than others.⁹⁴ This could result in consumers forming views on quality of service associated with a particular network that would not relate to the underlying performance of the network but rather a circumstance created by a Temporary Situation, a situation which would not persist in the long run beyond the Temporary Situation.
- 4.48 Under the Proposed Approach, a suite of options would be made available to operators on a temporary basis which would allow additional spectrum resources to be deployed in order to reduce the impact associated with additional mobile traffic. In short, the availability of such options would likely mitigate against distortions that might otherwise arise and reduce the risk of distortions to long run competition arising from a temporary and exceptional circumstance.

⁹² For example, Three's commercial offering typically includes high data packages (e.g. all you can eat) and its network is likely dimensioned for same.

⁹³ For example, the Joint Request notes that "*We all have already adjusted network configuration to the extent that we can (e.g. adjustments to capacity).*"

⁹⁴ For example, almost all the traffic generated over the period of the Temporary Situation will be made indoors and traffic that might normally have been made outdoors is now being made indoors. Some networks may be better able to account for such changes because of the location of base stations and the particular bands rolled out on same.

4.49 Therefore, ComReg is of the preliminary view that its Proposed Approach is necessary, not likely to create any long-term distortions to competition and indeed may mitigate distortions that might otherwise arise.

4.4 Assessment of the Proposed Approach against ComReg's relevant functions, objectives and duties

4.50 Based on the information provided by the MNOs and other available information, ComReg is of the preliminary view that the Proposed Approach would be appropriate in the context of ComReg's functions, objectives and duties, including being objectively justified and proportionate as required by Regulation 15 of the Authorisation Regulations. Factors informing this view are outlined below.

4.51 **First**, it would accord with the objective of promoting competition to the benefit of consumers for the reasons identified above.

4.52 **Second**, it would encourage the efficient use of the radio spectrum by:

- assigning rights of use those most likely to use the spectrum efficiently.
- facilitating the use of spectrum to reduce the impact of a temporary and widespread surge in demand due to the Temporary Situation.
- providing additional protections against any additional government measures that would increase the load on mobile networks.⁹⁵
- applying a consistent and predictable approach to pricing ECS spectrum that takes account of the circumstances of the Temporary Situation.

4.53 **Third**, the Proposed Approach would also accord with the relevant regulatory principles which ComReg is obliged to apply in pursuit of its objectives. In particular:

⁹⁵ For example, in Italy since the announcement of a full lockdown there has been a three-fold increase in the use of video conferencing, which, alongside streaming and gaming, drove a 75 per cent rise in residential data traffic across broadband and mobile networks since enacting additional lockdown measure, according to Telecom Italia.

<https://www.ft.com/content/b4ab03db-de1f-4f98-bcc2-b09007427e1b>

- it would promote efficient investment by facilitating additional network capacity in an efficient manner by permitting it to avoid what would otherwise be inefficient investment costs (i.e. costs that operators may have to occur and would not be needed in the period after the Temporary Situation);
- it would not give rise to discrimination in the treatment of undertakings providing ECN and ECS because MNOs are likely to be the only users that could use the proposed spectrum for the duration of the Temporary Situation (given existing infrastructures) and all MNOs would be permitted to justify their need for temporary rights of use; and
- it would accord with the principle of safeguarding competition to the benefit of consumers, for the reasons identified above (in relation to the impact on competition and consumers).

4.54 **Fourth**, the Proposed Approach would be proportionate because, among other things:

- temporary rights of use would be provided on a liberalised basis which generally accords with the principle and requirements of technology neutrality in the Common Regulatory Framework.
- the objective of the Proposed Approach (i.e. facilitating additional network capacity which would avoid inefficient investment costs) would accord with ComReg's statutory objectives and regulatory principles as described above;
- there do not appear to be less onerous means by which these objectives and principles could be achieved because:
 - other measures to increase network capacity are not feasible over the period of the Temporary Situation⁹⁶; and
 - the MNOs have already adjusted network configuration to the extent possible without constructing new infrastructure.

⁹⁶ For example, the rollout of additional bases stations could not be achieved in the given time period. The Joint Request confirmed same noting that "*New infrastructure cannot be built at short notice, so operators must look to whatever tools they have available to optimise networks to the current situation.*"

- the Proposed Approach would involve new temporary liberalised rights of use and would not change the conditions and commitments to the any existing licences and the same on new conditions etc.

4.55 Finally, the Proposed Approach is without prejudice to ComReg's obligation to monitor and supervise compliance with the obligations of the temporary liberalised licences.

Chapter 5

5 Draft Decision

This chapter sets out a draft decision document based on the preliminary views expressed by ComReg in the preceding chapters and their supporting annexes.

Decision

5.1 1. DEFINITIONS AND INTERPRETATION

2. In this Decision, save where the context otherwise admits or requires:

“2.1 GHz Band” means radio frequency spectrum in the range 1920 to 1980 MHz paired with radio frequency spectrum in the range 2110 to 2170 MHz;

“2.1 GHz Band Block” means a 5 MHz paired block of radio frequency spectrum in the 2.1 GHz Band;

“2.1 GHz Band EC Decision” means European Commission Decision 2012/688/EC⁹⁷;

“2.6 GHz Band” means radio frequency spectrum in the range 2500 to 2690 MHz;

“2.6 GHz Band EC Decision” means European Commission Decision 2008/477/EC⁹⁸;

“2.6 GHz Band FDD Frequency Generic Block” means a 5 MHz block of radio frequency spectrum in the range 2500 to 2570 MHz paired with a 5 MHz block of radio frequency spectrum in the range 2620 to 2690 MHz;

“2.6 GHz Band TDD Fixed Frequency Block (Lower)” means the 5 MHz unpaired block of radio frequency spectrum in the range 2570 to 2575 MHz;

“2.6 GHz Band TDD Fixed Frequency Block (Upper)” means a 5 MHz unpaired block of radio frequency spectrum in the range 2615 to 2620 MHz;

“2.6 GHz Band TDD Frequency Generic Block” means a 5 MHz unpaired block of radio frequency spectrum in the range 2575 to 2615 MHz;

⁹⁷ Commission Implementing Decision of 5 November 2012 on the harmonisation of the frequency bands 1920 - 1980 MHz and 2110 - 2170 MHz for terrestrial systems capable of providing electronic communications services in the Union.

⁹⁸ Commission Decision of 13 June 2008 on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community.

“2.6 GHz Band Blocks” means the 2.6 GHz Band FDD Frequency Generic Blocks and the 2.6 GHz Band TDD Blocks;

“2.6 GHz Band TDD Blocks” means the 2.6 GHz Band TDD Fixed Frequency Block (Lower), 2.6 GHz Band TDD Fixed Frequency Block (Upper) and 2.6 GHz Band TDD Frequency Generic Blocks;

“700 MHz Duplex” means radio frequency spectrum in the range 703 – 733 MHz paired with 758 – 788 MHz;

“700 MHz Duplex Block” means a right of use in respect of a 2x5 MHz block of spectrum in the 700 MHz Duplex;

“700 MHz EC Decision” means Decision (EU) 2016/687⁹⁹;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations, 2011 (S.I. No. 335 of 2011);

“Communications Regulation Act 2002” means the Communications Regulation Act, 2002, (No. 20 of 2002), as amended;

“ComReg” means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act 2002;

“Electronic Communications Network” (or **“ECN”**) and **“Electronic Communications Service”** (or **“ECS”**) have the meanings assigned to them in the Framework Regulations;

“Temporary ECS Licence” means a licence of the type set out in draft form in Schedule 1 to the Temporary ECS Licence Regulations;

“Temporary ECS Licence Regulations” means the Wireless Telegraphy (TEMPORARY ELECTRONIC COMMUNICATIONS SERVICES LICENCES) Regulations, 202X, as set out in draft form in [Annex XX] to ComReg Document 20/[XX] [this document];

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011, (S.I. No. 333 of 2011);

“Minister” means the Minister of Communications, Climate Action and Environment;

“MNO” means a mobile network operator with an existing network in Ireland;

⁹⁹ Commission Implementing Decision of 28 April 2016 on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union.

“**Relevant Spectrum**” means 700 MHz Duplex Blocks, 2.1 GHz Band Blocks, and 2.6 GHz Band Blocks;

“**RSPP Decision**” means Decision No 243/2012/EU¹⁰⁰;

“**Undertaking**” has the same meaning set out in the Framework Regulations; and

“**Wireless Telegraphy Act 1926**” means the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as amended.

5.2 2. DECISION-MAKING CONSIDERATIONS

2. In arriving at its decisions in this document, ComReg has had regard to:

- i. the contents of, and the materials and reasoning referred to in, as well as the materials provided by respondents in connection with, the below-listed ComReg documents:
 - a) 18/60, 19/59R and 19/124 (insofar as they are relevant to the present decisions and, in particular, concerning the technical licence conditions for the Relevant Spectrum);
 - b) 20/XX [document to which this draft decision is attached];
and
 - c) 20/XX [document to which the final decision will be attached];
- ii. the consultants’ reports commissioned, and the advice obtained by ComReg, in relation to the subject-matter of the documents and materials listed above (insofar as they are relevant to the present decisions and, in particular, concerning the technical licence conditions for the Relevant Spectrum) and, in particular, ComReg documents 19/59c and 19/124c
- iii. the powers, functions, objectives and duties of ComReg, including, without limitation those under and by virtue of:
 - a) the Communications Regulation Act 2002, and, in particular, sections 10, 12 and 13 thereof;
 - b) the Framework Regulations, and, in particular, Regulations 13, 16 and 17 thereof;
 - c) the Authorisation Regulations, and, in particular, Regulations 9, 10, 11, 12, 15, 16, 17, 18(1)(c) and 19 thereof;
 - d) the RSPP Decision;

¹⁰⁰ Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme.

- e) the 2.1 GHz Band EC Decision;
- f) the 2.6 GHz Band EC Decision;
- g) the 700 MHz EC Decision;
- h) Sections 5 and 6 of the Wireless Telegraphy Act, 1926; and
- i) the applicable Policy Directions made by the Minister under section 13 of the Communications Regulation Act 2002,

and, noting that it has:

- j) given all interested parties the opportunity to express their views and make their submissions in accordance with Regulation 11 of the Authorisation Regulations and Regulation 12 of the Framework Regulations,

as set out in the various chapters of Document 20/XX [document to which the final decision will be attached] and their supporting annexes.

5.3 3. DECISIONS

2. Having had regard to the above considerations, ComReg has decided:

- 5.1 subject to obtaining the consent of the Minister to the making by it of the Temporary ECS Licence Regulations, to make those regulations under section 6 of the Wireless Telegraphy Act 1926, prescribing relevant matters in relation to Temporary ECS Licences, including prescribing the form of the licences concerned, their duration and the conditions and restrictions subject to which they are granted;

700 MHz and 2.1GHz Bands

- 5.2 upon application properly being made to it by MNOs for Temporary ECS Licences with rights of use in the 700 MHz and 2.1 GHz Bands:
 - 5.2.1 to select which MNOs will be granted Temporary ECS Licences in the 700 MHz and 2.1 GHz bands having regard to the principles generally described in Chapter [XX] of Document 20/XX [document to which the final decision will be attached] and further particularised in the Temporary ECS Licence Regulations, as made, and the material provided by applicants in support of their respective application; furthermore, if the aggregate demand for 700 MHz Duplex Blocks exceeds the amount available, ComReg shall decide the number of 700 MHz Duplex Blocks (if any) to award to each applicant, based on, among other things, the ability of the applicant to deliver services expeditiously using those rights of use;

5.2.2 to grant Temporary ECS Licences, under section 5 of the Wireless Telegraphy Act 1926 to such MNOs for the periods, and subject to the conditions and restrictions (including conditions as to suspension and withdrawal), prescribed in the Temporary ECS Licence Regulations, including the schedule to Temporary ECS Licences as currently set out in Annex [XX] of Document 20/[XX] [this document].

2.6 GHz Band

5.3 upon application properly being made to it by MNOs for Temporary ECS Licences in respect of 2.6 GHz Band Blocks, and following consultation with the Irish Aviation Authority:

5.3.1 to select which MNOs will be granted Temporary ECS Licences with 2.6 GHz Band Blocks having regard to the principles generally described in Chapter [XX] of Document 20/XX [document to which the final decision will be attached] and further particularised in the Temporary ECS Licence Regulations, as made, and the material provided by applicants in support of their respective application; in particular, the proposed location of sites and confirmation that they will comply with the requirement to protect Aeronautical Primary Radars, if the aggregate demand for 2.6 GHz Band Blocks exceeds the amount available, ComReg shall decide the number of 2.6 GHz Band Blocks (if any) to award to each applicant, based on, among other things, the ability of the applicant to deliver services expeditiously using those rights of use;

5.3.2 to grant Temporary ECS Licences, under section 5 of the Wireless Telegraphy Act 1926 to such MNOs, where spectrum rights shall be assigned on a site by site basis, for the periods, and subject to the conditions and restrictions (including conditions as to suspension and withdrawal), prescribed in the Temporary ECS Licence Regulations, including the schedule to Temporary ECS Licences as currently set out in Annex [XX] of Document 20/[XX] [this document].

5.3.3 to consider applications for the addition of sites to a Temporary ECS Licence granted in respect of rights of use in the 2.6 GHz Band Blocks from time to time on a first come, first served basis.

5.4 to make the duration of a Temporary ECS Licence up to but no longer than 3 calendar months.

- 5.5 upon application being properly being having regard to the principles generally described in Chapter [XX] of Document 20/XX [document to which the final decision will be attached] and further particularised in the Temporary ECS Licence Regulations, and the material provided by applicants in support of their renewal, to renew a Temporary ECS Licence for a further period of up to but no longer than 3 calendar months.
- 5.6 that any Temporary ECS Licence granted or renewed shall expire no later than 6 calendar months from the date of the Temporary ECS Licence Regulations.

5.4 4. STATUTORY POWERS NOT AFFECTED

- 4.1 Nothing in this document shall operate to limit ComReg in the exercise of its discretions or powers, or the performance of its functions or duties, or the attainment of objectives under any laws applicable to ComReg from time to time.

Chapter 6

6 Submitting comments and next steps

6.1 Submitting Comments

- 6.1 On all aspects of the proposals in this consultation, ComReg invites input from interested parties by close of business 31 March 2020. Considering the urgency of the issue, ComReg has set a shorter period compared to the normal four weeks identified in ComReg's Consultation Procedures¹⁰¹.
- 6.2 It would make the task of analysing responses easier if comments were referenced to the relevant section / paragraph number in each chapter and annex in this document or the relevant accompanying consultant's report.
- 6.3 Please also set out your reasoning and all supporting information for any views expressed.
- 6.4 Responses must be submitted in written form (e-mail) to the following recipient, clearly marked — Submissions to ComReg 20/21:

Mr. Joseph Coughlan
Commission for Communications Regulation
One Dockland Central
Guild Street
Dublin 1
D01 E4X0.
Ireland

Email: marketframeworkconsult@comreg.ie

- 6.5 We request that electronic submissions be submitted in an unprotected format so that they can be readily included in the ComReg submissions document for electronic publication.

¹⁰¹ See Document 11/34.

6.6 ComReg appreciates that respondents may wish to provide confidential information if their comments are to be meaningful. In order to promote openness and transparency, ComReg will publish all respondents' submissions to this consultation, as well as all substantive correspondence on matters relating to this document, subject to the provisions of ComReg's guidelines on the treatment of confidential information.

6.7 In this regard, respondents should submit views in accordance with the instructions set out below. When submitting a response to this consultation that contains confidential information, respondents must choose one of the following options:

A. Submit both a non-confidential version and a confidential version of the response. The confidential version must have all confidential information clearly marked and highlighted in accordance with the instruction set out below. The separate non-confidential version must have actually redacted all items that were marked and highlighted in the confidential version.

OR

B. Submit only a confidential version and ComReg will perform the required redaction to create a non-confidential version for publication. With this option, respondents must ensure that confidential information has been marked and highlighted in accordance with the instructions set out below. Where confidential information have not been marked as per our instructions below, then ComReg will not create the non-confidential redacted version and the respondent will have to provide the redacted non-confidential version in accordance with option A above.

6.8 For ComReg to perform the redactions under Option B above, respondents must mark and highlight all confidential information in their submission as follows:

- a. Confidential information contained within a paragraph must be highlighted with a chosen particular colour,
- b. Square brackets must be included around the confidential text (one at the start and one at the end of the relevant highlighted confidential information),
- c. A Scissors symbol (Symbol code: Wingdings 2:38) must be included after the first square bracket.

6.9 For example, "Redtelecom has a market share of [✂ 25%]."

6.2 Next Steps

- 6.10 Following receipt and consideration of submissions in response to this consultation, and other relevant material, ComReg intends to publish a response to consultation together with its final Decision.
- 6.11 While ComReg cannot provide further clarity on the overall timelines at this juncture, as this will depend, among other things, on the nature of responses received to this consultation, ComReg hopes to issue the above by 3 April 2020.

Annex: 1 Glossary

A1.1 Definitions

- A 1.1 The definitions in this glossary shall apply to this document as a whole.
- A 1.2 Where a term in this glossary is defined by reference to a definition in a section or paragraph and an explanation of that term is provided in this glossary, the latter explanation is for convenience only and reference should be made to the appropriate part of the document for the definitive meaning of that term in its appropriate context.
- A 1.3 Any reference to any provision of any legislation shall include any modification re-enactment or extension thereof.
- A 1.4 Terms defined in this consultation paper shall, unless the context otherwise requires or admits, have the meaning set out below:

3.6 GHz Band	The radio frequency spectrum in the range 3 400 MHz to 3 800 MHz.
700 MHz Band	The frequency range 694 – 790 MHz.
700 MHz Duplex	The frequency range 703-733 MHz paired with 758-788 MHz.
800 MHz Band	The frequency range 790 – 862 MHz
900 MHz Band	The frequency range 880 – 915 MHz paired with 925 – 960 MHz
2.1 GHz Band	The frequency ranges 1920-1980 MHz paired with 2110-2170 MHz
2.3 GHz Band	The frequency range 2 300 – 2 400 MHz
2.6 GHz Band	The frequency range 2 500 – 2 690 MHz.
Aeronautical Primary Radars	Means apparatus (including “Star 2000” and “TA10” models) providing primary aircraft detection used in airport surveillance networks at Dublin, Cork and Shannon airports.

Apparatus	Licences means apparatus for wireless telegraphy as defined in section 2 of the Act of 1926 for terrestrial systems capable of providing Electronic Communications Services
Appropriate Evidence	<p>Includes:</p> <ul style="list-style-type: none"> • the radio spectrum band applied for; • the name/identity of the site to be included in the licence; • the coordinates of the site (easting and northing); • equipment index reference; • maximum EIRP for the site; • confirmation for each site that equipment including antennas are in place to be used in the respective band; • the key steps needed to bring the site or group of sites on air including the expected dates for this; and • for each equipment index reference, the terrestrial system, equipment description, manufacturer, make and model of the piece of equipment
Covid-19	COVID-19 is a new illness that can affect your lungs and airways and is caused by a virus called coronavirus.
Draft Regulations	Regulations (WIRELESS TELEGRAPHY (TEMPORARY ELECTRONIC COMMUNICATIONS SERVICES LICENCES) REGULATIONS 2020) intended to be made by ComReg, subject to the consent of the Minister for Communications, Climate Action and Environment.
General Authorisation	An authorisation for an undertaking to provide an electronic communications network or service under and in accordance with Regulation 4 of the Authorisation Regulations.
Joint Request	The common letter submitted to ComReg by the MNO's requesting temporary actions as detailed in paragraph 1.13 of this document.

MBSA2	ComReg’s Proposed Multi-Band Spectrum Award
Open Internet Regulation	Regulation (EU) 2015/2020 Article 3.3.
Proposed Approach	ComReg’s consideration of the approach set out in Chapter 3.
Proposed Bands	Means the 700 MHz Duplex, 2.1 GHz Band and the 2.6 GHz Band.
Proposed Multi-Band Spectrum Award (MBSA)	ComReg’s proposed Multi-Band Spectrum Award. Further information is available at https://www.comreg.ie/industry/radio-spectrum/spectrum-awards/proposed-multi-band-spectrum-award/
RIA	Regulatory Impact Assessment, an analysis of the likely effect of, and necessity of, a proposed new regulation or regulatory change. Such assessments are carried out in accordance with Document 07/56a - Guidelines on ComReg’s approach to Regulatory Impact Assessment - August 2007.
SAF	Spectrum Access Fee
SUF	Spectrum Usage Fee
Spectrum right of use	Authorisation to use certain radio frequencies subject to such conditions and restrictions as may be prescribed in a licence or by any regulations made by ComReg under section 6 of the Act of 1926.
Temporary ECS Licences	Means a licence of the type set out in draft form in Schedule 1 to the Temporary ECS Licence Regulations.
Temporary ECS Licence Regulations	Means the Wireless Telegraphy (TEMPORARY ELECTRONIC COMMUNICATIONS SERVICES LICENCES Regulations, 202X,

	as set out in draft form in [Annex XX] to ComReg Document 20/[XX] [this document]
Temporary Situation	Means the temporary impact upon electronic communications networks and services from the extraordinary situation arising from the spread of the disease known COVID-19.

A1.2 European and Governmental Bodies, Regulatory and Standardisation Organisations

BEREC	Body of European Regulators for Electronic Communications
ComReg	Commission for Communications Regulation
CEPT	Conférence européenne des Administration des postes et des télécommunications. In English, European Conference of Postal and Telecommunications Administrations
DCCAE	Department of Communications, Climate Action and the Environment
DEASP	Department of Employment Affairs and Social Protection
EC	European Commission
ECC	Electronic Communications Committee (of CEPT)
ECO	European Communications Office
EU	European Union
FCC	Federal Communications Commission

HSE	Health Service Executive
IAA	Irish Aviation Authority
IFT	Instituto Federal de Telecomunicaciones
ITU	International Telecommunication Union
WHO	World Health Organisation.

A1.3 Primary and Secondary Legislation

S.I.	Statutory Instrument
2002 Act	The Communications Regulation Act 2002 (No. 20 of 2002), as amended ¹⁰²
Authorisation Regulations	European Communities (Electronic Communication Networks and Services) (Authorisation) Regulations 2011 (S.I. No 335 of 2011)
Directive 2002/77/EC	A European Commission Directive on competition in the markets for electronic communications networks and services
2.6 GHz EC Decision / EC Decision 2008/477/EC	European Commission Decision on the harmonisation of the 2 500 - 2 690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community
2.1 GHz EC Decision / EC Decision 2012/688/EU	European Commission Decision on the harmonisation of the frequency bands 1 920 – 1 980 MHz and 2 110 – 2 170 MHz for terrestrial

¹⁰² Includes the Communications Regulation (Amendment) Act 2007 and the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010.

	systems capable of providing electronic communications services in the Community
700 MHz EC Decision / EC Decision 2016/687/EU	European Commission Decision on the harmonisation of the 694 - 790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union
EC Decision 2009/766/EC	European Commission Decision on the harmonisation of the 900 MHz and 1 800 MHz frequency band for terrestrial systems capable of providing pan-European electronic communications services in the Community
EC Decision 2011/251/EU	European Commission Decision, amending Decision 2009/766/EC, on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community.
2.3 GHz ECC Decision / ECC Decision ECC/DEC(14)02	Electronic Communications Committee decision to harmonised technical and regulatory conditions for the use of the band 2 300 - 2 400 MHz for Mobile/Fixed Communications Networks (MFCN).
Framework Regulations	European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No 333 of 2011)
Specific Regulations	Specific Regulations has the same meaning as set out in Regulation 2 of the Framework Regulations

A1.4 Glossary of Technical Terms

3G	Third Generation Mobile System (e.g. UMTS)
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CPI	Consumer Price Index
DTT	Digital Terrestrial Television
ECN	Electronic Communications Networks
ECS	Electronic Communications Service as defined under the Framework Regulations
FDD	Frequency Division Duplex
FWA	Fixed Wireless Access
GHz	Gigahertz (1 000 000 000 Hertz)
Guard-band	An unused spectrum bandwidth separating channels to prevent interference
GSM	Global System for Mobile Communications
Hertz	Unit of Frequency
kHz	Kilohertz (1 000 Hertz)
LTE	Long Term Evolution of 3G
LTE Advanced / LTE+	An evolution of LTE, having the capability to provide 4G services.
MFCN	Mobile/fixed communications networks
MHz	Megahertz (1 000 000 Hertz)
MNO	Mobile Network Operator
pfd	Power Flux Density (dBW/m ²) equals the interference threshold at radar receiver input (measured in dBW)

	minus the radar antenna gain (measured in dBi) plus $10^{\log(4\pi/\lambda^2)}$, where λ is the wavelength in meters
QoS	Quality of Service
TDD	Time Division Duplex
TD-LTE	Time Division – Long Term Evolution
UMTS	Universal Mobile Telecommunications System.
VPN	Virtual Private Network
VoLTE	Voice over Long Term Evolution
VOIP	Voice over Internet Protocol

Annex: 2 Legal Framework and Statutory Objectives

- A 2.1 The Communications Regulation Act 2002 (as amended by the Communications Regulation (Amendment) Act 2007) (the “2002 Act”), the EU Common Regulatory Framework (including the Framework and Authorisation Directives¹⁰³ as transposed into Irish law by the corresponding Framework and Authorisation Regulations¹⁰⁴), and the Wireless Telegraphy Acts 1926 to 2009¹⁰⁵ set out, amongst other things, powers, functions, duties and objectives of ComReg that are relevant to the management of the radio frequency spectrum in Ireland and to this consultation document.
- A 2.2 Apart from licensing and making regulations in relation to licences, ComReg’s functions include the management of Ireland’s radio frequency spectrum in accordance with ministerial Policy Directions under section 13 of the 2002 Act, having regard to its objectives under section 12 of the 2002 Act, Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive. ComReg is to carry out its functions effectively, and in a manner serving to ensure that the allocation and assignment of radio frequencies is based on objective, transparent, non-discriminatory and proportionate criteria.
- A 2.3 This annex is intended as a general guide as to ComReg’s role in this area, and not as a definitive or exhaustive legal exposition of that role. Further, this annex restricts itself to consideration of those powers, functions, duties and objectives of ComReg that appear most relevant to the matters at hand and generally excludes those not considered relevant (for example, in relation to postal services, premium rate services or market analysis). For the avoidance of doubt, however, the inclusion of particular material in this

¹⁰³ Directive No. 2002/21/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Regulation (EC) No. 717/2007 of 27 June 2007, Regulation (EC) No. 544/2009 of 18 June 2009 and Directive 2009/140/EC of the European Parliament and Council of 25 November 2009) (the “Framework Directive”) and Directive No. 2002/20/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Directive 2009/140/EC) (the “Authorisation Directive”).

¹⁰⁴ The European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) and the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011) respectively.

¹⁰⁵ The Wireless Telegraphy Acts 1926 to 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

annex does not necessarily mean that ComReg considers same to be of specific relevance to the matters at hand.

A 2.4 All references in this annex to enactments are to the enactment as amended at the date hereof, unless the context otherwise requires.

New European Electronic Communications Code

A 2.5 On 20 December 2018, Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (“EECC”) entered into force.

A 2.6 The EECC replaces the EU Common Regulatory Framework adopted in 2002 (and amended in 2009) under which ComReg has regulated electronic communications since 2003.

A 2.7 With some limited exceptions (see Article 124 of the EECC), Member States have until 21 December 2020 to transpose the EECC into national law.¹⁰⁶ Until then, the existing EU Common Regulatory Framework will continue to apply. However, in developing its proposals for the Proposed Award, ComReg is mindful of the EECC.

A 2.8 ComReg understands that the DCCA will be responsible for the transposition of the EECC and will assist as appropriate.

A2.1 Primary Objectives and Regulatory Principles under the 2002 Act and Common Regulatory Framework

A 2.9 ComReg’s primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- promote competition¹⁰⁷;
- contribute to the development of the internal market¹⁰⁸;
- promote the interests of users within the Community¹⁰⁹;

¹⁰⁶ With the exception of Articles 53(2), (3) and (4), and Article 54 (see Article 124).

¹⁰⁷ Section 12 (1)(a)(i) of the 2002 Act.

¹⁰⁸ Section 12 (1)(a)(ii) of the 2002 Act.

¹⁰⁹ Section 12(1)(a)(iii) of the 2002 Act.

- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under section 13 of the 2002 Act¹¹⁰; and
- unless otherwise provided for in Regulation 17 of the Framework Regulations, take the utmost account of the desirability of technological neutrality in complying with the requirements of the Specific Regulations¹¹¹ in particular those designed to ensure effective competition¹¹².

A2.1.1 Promotion of Competition

A 2.10 Section 12(2)(a) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at the promotion of competition, including:

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector; and
- encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources.

A 2.11 In so far as the promotion of competition is concerned, Regulation 16(1)(b) of the Framework Regulations also requires ComReg to:

- ensure that elderly users and users with special social needs derive maximum benefit in terms of choice, price and quality, and

¹¹⁰ Section 12(1)(b) of the 2002 Act. Whilst this objective would appear to be a separate and distinct objective in the 2002 Act, it is noted that, for the purposes of ComReg's activities in relation to electronic communications networks and services ("ECN" and "ECS"), Article 8 of the Framework Directive identifies "*encouraging efficient use and ensuring the effective management of radio frequencies (and numbering resources)*" as a sub-objective of the broader objective of the promotion of competition.

¹¹¹ The 'Specific Regulations' comprise collectively the Framework Regulations, the Authorisation Regulations, the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011), the European Communities (Electronic Communications Networks and Services) (Universal Service and Users' Rights) Regulations 2011 (S.I. 337 of 2011) and the European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications) Regulations 2011 (S.I. No. 336 of 2011).

¹¹² Regulation 16(1)(a) of the Framework Regulations.

- ensure that, in the transmission of content, there is no distortion or restriction of competition in the electronic communications sector.

A 2.12 Regulation 9(11) of the Authorisation Regulations also provides that ComReg must ensure that radio frequencies are efficiently and effectively used having regard to section 12(2)(a) of the 2002 Act and Regulations 16(1) and 17(1) of the Framework Regulations. Regulation 9(11) further provides that ComReg must ensure that competition is not distorted by any transfer or accumulation of rights of use for radio frequencies and, for this purpose, ComReg may take appropriate measures such as mandating the sale or the lease of rights of use for radio frequencies.

A2.1.2 Contributing to the Development of the Internal Market

A 2.13 Section 12(2)(b) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at contributing to the development of the internal market, including:

- removing remaining obstacles to the provision of ECN, ECS and associated facilities at Community level;
- encouraging the establishment and development of trans-European networks and the interoperability of transnational services and end-to-end connectivity; and
- co-operating with electronic communications national regulatory authorities in other Member States of the Community and with the Commission of the Community in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of Community law in this field.

A 2.14 In so far as contributing to the development of the internal market is concerned, Regulation 16(1)(c) of the Framework Regulations also requires ComReg to co-operate with the Body of European Regulators for Electronic Communications (“BEREC”) in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of EU law in the field of electronic communications.

A2.1.3 Promotion of Interests of Users

A 2.15 Section 12(2)(c) of the 2002 Act requires ComReg, when exercising its functions in relation to the provision of electronic communications networks and services, to take all reasonable measures which are aimed at the promotion of the interests of users within the Community, including:

- ensuring that all users have access to a universal service;
- ensuring a high level of protection for consumers in their dealings with suppliers, in particular by ensuring the availability of simple and inexpensive dispute resolution procedures carried out by a body that is independent of the parties involved;
- contributing to ensuring a high level of protection of personal data and privacy;
- promoting the provision of clear information, in particular requiring transparency of tariffs and conditions for using publicly available ECS;
- encouraging access to the internet at reasonable cost to users;
- addressing the needs of specific social groups, in particular disabled users; and
- ensuring that the integrity and security of public communications networks are maintained.

A 2.16 In so far as promotion of the interests of users within the EU is concerned, Regulation 16(1)(d) of the Framework Regulations also requires ComReg to:

- address the needs of specific social groups, in particular, elderly users and users with special social needs, and
- promote the ability of end-users to access and distribute information or use applications and services of their choice.

A2.1.4 Regulatory Principles

A 2.17 In pursuit of its objectives under Regulation 16(1) of the Framework Regulations and section 12 of the 2002 Act, ComReg must apply objective, transparent, non-discriminatory and proportionate regulatory principles by, amongst other things:

- promoting regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods;
- ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing ECN and ECS;

- safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition;
- promoting efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors and parties seeking access to diversify the risk of investment, while ensuring that competition in the market and the principle of non-discrimination are preserved;
- taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State; and
- imposing ex-ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled.

A2.1.5 BEREC

A 2.18 Under Regulation 16(1)(3) of the Framework Regulations, ComReg must:

- having regard to its objectives under section 12 of the 2002 Act and its functions under the Specific Regulations, actively support the goals of BEREC of promoting greater regulatory co-ordination and coherence; and
- take the utmost account of opinions and common positions adopted by BEREC when adopting decisions for the national market.

A2.1.6 Other Obligations under the 2002 Act

A 2.19 In carrying out its functions, ComReg is required, amongst other things, to:

- seek to ensure that any measures taken by it are proportionate having regard to the objectives set out in section 12 of the 2002 Act;¹¹³
- have regard to international developments with regard to the radio frequency spectrum¹¹⁴; and

¹¹³ Section 12(3) of the 2002 Act.

¹¹⁴ Section 12(5) of the 2002 Act.

- take the utmost account of the desirability that the exercise of its functions aimed at achieving its radio frequency management objectives does not result in discrimination in favour of or against particular types of technology for the provision of ECS.¹¹⁵

A2.1.7 Policy Directions¹¹⁶

A 2.20 Section 12(4) of the 2002 Act provides that, in carrying out its functions, ComReg must have appropriate regard to policy statements, published by or on behalf of the Government or a Minister of the Government and notified to the Commission, in relation to the economic and social development of the State. Section 13(1) of the 2002 Act requires ComReg to comply with any policy direction given to ComReg by the Minister for Communications, Energy and Natural Resources (“the Minister”) as he or she considers appropriate, in the interests of the proper and effective regulation of the electronic communications market, the management of the radio frequency spectrum in the State and the formulation of policy applicable to such proper and effective regulation and management, to be followed by ComReg in the exercise of its functions. Section 10(1)(b) of the 2002 Act also requires ComReg, in managing the radio frequency spectrum, to do so in accordance with a direction of the Minister under section 13 of the 2002 Act, while Section 12(1)(b) requires ComReg to ensure the efficient management and use of the radio frequency spectrum in accordance with a direction under Section 13.

A 2.21 The Policy Directions which are most relevant in this regard include the following:

Policy Direction No.3 on Broadband Electronic Communication Networks

A 2.22 ComReg shall in the exercise of its functions, take into account the national objective regarding broadband rollout, viz, the Government wishes to ensure the widespread availability of open-access, affordable, always-on broadband infrastructure and services for businesses and citizens on a balanced regional basis within three years, on the basis of utilisation of a range of existing and emerging technologies and broadband speeds appropriate to specific categories of service and customers.

¹¹⁵ Section 12(6) of the 2002 Act.

¹¹⁶ ComReg also notes, and takes due account of, the Spectrum Policy Statement issued by the Department of Communications Energy and Natural Resources in September 2010.

Policy Direction No.4 on Industry Sustainability

A 2.23 ComReg shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry's position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected.

Policy Direction No.5 on Regulation only where necessary

A 2.24 Where ComReg has discretion as to whether to impose regulatory obligations, it shall, before deciding to impose such regulatory obligations on undertakings, examine whether the objectives of such regulatory obligations would be better achieved by forbearance from imposition of such obligations and reliance instead on market forces.

Policy Direction No.6 on Regulatory Impact Assessment

A 2.25 ComReg, before deciding to impose regulatory obligations on undertakings in the market for electronic communications or for the purposes of the management and use of the radio frequency spectrum or for the purposes of the regulation of the postal sector, shall conduct a Regulatory Impact Assessment in accordance with European and International best practice and otherwise in accordance with measures that may be adopted under the Government's Better Regulation programme.

Policy Direction No.7 on Consistency with other Member States

A 2.26 ComReg shall ensure that, where market circumstances are equivalent, the regulatory obligations imposed on undertakings in the electronic communications market in Ireland should be equivalent to those imposed on undertakings in equivalent positions in other Member States of the European Community.

Policy Direction No.11 on the Management of the Radio Frequency Spectrum

A 2.27 ComReg shall ensure that, in its management of the radio frequency spectrum, it takes account of the interests of all users of the radio frequency spectrum.

General Policy Direction No.1 on Competition (2004)

A 2.28 ComReg shall focus on the promotion of competition as a key objective. Where necessary, ComReg shall implement remedies which counteract or remove barriers to market entry and shall support entry by new players to

the market and entry into new sectors by existing players. ComReg shall have a particular focus on:

- market share of new entrants;
- ensuring that the applicable margin attributable to a product at the wholesale level is sufficient to promote and sustain competition;
- price level to the end user;
- competition in the fixed and mobile markets; and
- the potential of alternative technology delivery platforms to support competition

A2.2 Other Relevant Obligations under the Framework and Authorisation Regulations

A2.2.1 Framework Regulations

Regulation 17

A 2.29 Regulation 17 of the Framework Regulations governs the management of radio frequencies for ECS. Regulation 17(1) requires that ComReg, subject to any directions issued by the Minister pursuant to Section 13 of the 2002 Act and having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive, ensure:

- the effective management of radio frequencies for ECS;
- that spectrum allocation used for ECS and issuing of general authorisations or individual rights of use for such radio frequencies are based on objective, transparent, non-discriminatory and proportionate criteria; and
- ensure that harmonisation of the use of radio frequency spectrum across the EU is promoted, consistent with the need to ensure its effective and efficient use and in pursuit of benefits for the consumer such as economies of scale and interoperability of services, having regard to all decisions and measures adopted by the European Commission in accordance with Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the EU.

- A 2.30 Regulation 17(2) provides that, unless otherwise provided in Regulation 17(3), ComReg must ensure that all types of technology used for ECS may be used in the radio frequency bands that are declared available for ECS in the Radio Frequency Plan published under Section 35 of the 2002 Act in accordance with EU law.
- A 2.31 Regulation 17(3) provides that, notwithstanding Regulation 17(2), ComReg may, through licence conditions or otherwise, provide for proportionate and non-discriminatory restrictions to the types of radio network or wireless access technology used for ECS where this is necessary to:
- avoid harmful interference;
 - protect public health against electromagnetic fields;
 - ensure technical quality of service;
 - ensure maximisation of radio frequency sharing;
 - safeguard the efficient use of spectrum; or
 - ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in accordance with Regulation 17(6).
- A 2.32 Regulation 17(4) requires that, unless otherwise provided in Regulation 17(5), ComReg must ensure that all types of ECS may be provided in the radio frequency bands, declared available for ECS in the Radio Frequency Plan published under Section 35 of the Act of 2002 in accordance with EU law.
- A 2.33 Regulation 17(5) provides that, notwithstanding Regulation 17(4), ComReg may provide for proportionate and non-discriminatory restrictions to the types of ECS to be provided, including where necessary, to fulfil a requirement under the International Telecommunication Union Radio Regulations (“ITU-RR”).
- A 2.34 Regulation 17(6) requires that measures that require an ECS to be provided in a specific band available for ECS must be justified in order to ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law such as, but not limited to:
- safety of life;

- the promotion of social, regional or territorial cohesion;
- the avoidance of inefficient use of radio frequencies; or
- the promotion of cultural and linguistic diversity and media pluralism, for example, by the provision of radio and television broadcasting services.

- A 2.35 Regulation 17(7) provides that ComReg may only prohibit the provision of any other ECS in a specific radio spectrum frequency band where such a prohibition is justified by the need to protect safety of life services. ComReg may, on an exceptional basis, extend such a measure in order to fulfil other general interest objectives as defined by or on behalf of the Government or a Minister of the Government.
- A 2.36 Regulation 17(8) provides that ComReg must, in accordance with Regulation 18, regularly review the necessity of the restrictions referred to in Regulations 17(3) and 17(5) and must make the results of such reviews publicly available.
- A 2.37 Regulation 17(9) provides that Regulations 17(2) to (7) only apply to spectrum allocated to be used for ECS, general authorisations issued and individual rights of use for radio frequencies granted after 1 July 2011. Spectrum allocations, general authorisations and individual rights of use which already existed on 1 July 2011 are subject to Regulation 18 of the Framework Regulations.
- A 2.38 Regulation 17(10) provides that ComReg may, having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 and its functions under the Specific Regulations, lay down rules in order to prevent spectrum hoarding, in particular by setting out strict deadlines for the effective exploitation of the rights of use by the holder of rights and by withdrawing the rights of use in cases of non-compliance with the deadlines. Any rules laid down under this Regulation must be applied in a proportionate, non-discriminatory and transparent manner.
- A 2.39 Regulation 17(11) requires ComReg to, in the fulfilment of its obligations under that Regulation, respect relevant international agreements, including the ITU-RR and any public policy considerations brought to its attention by the Minister.

Regulation 23 on security and integrity and Regulation 24 on implementation and enforcement of Regulation 23

A 2.40 Regulation 23 provides:

23. (1) Undertakings providing public communications networks or publicly available electronic communications services shall take appropriate technical and organisational measures to appropriately manage the risks posed to security of networks and services. In particular, measures shall be taken to prevent and minimise the impact of security incidents on users and interconnected networks.

(2) The technical and organisational measures referred to in paragraph (1) shall, having regard to the state of the art, ensure a level of security appropriate to the risk presented.

(3) Undertakings providing public communications networks shall take all appropriate steps to guarantee the integrity of their networks, thereby ensuring the continuity of supply of services provided over those networks.

(4) (a) An undertaking providing public communications networks or publicly available electronic communications services shall notify the Regulator in the event of a breach of security or loss of integrity that has a significant impact on the operation of networks or services.

(b) Where the Regulator receives a notification under subparagraph (a), it shall inform the Minister of the said notification and, with the agreement of the Minister, it shall also, where appropriate, inform the national regulatory authorities in other Member States and ENISA.

(c) Where it is considered that it is in the public interest to do so the Regulator, with the agreement of the Minister, may inform the public in relation to the breach notified under subparagraph (a) or require the undertaking to inform the public accordingly.

(5) The Regulator shall annually submit a summary report to the Minister, the European Commission and EINSAs on the notifications received and the actions taken in accordance with paragraph (4).

(6) An undertaking that fails to comply with the requirements of paragraph (4)(a) or (c) commits an offence.

A 2.41 Regulation 24 provides:

24. (1) *For the purpose of ensuring compliance with Regulation 23 (1), (2) and (3), the Regulator may issue directions to an undertaking providing public communications networks or publicly available electronic communications services, including directions in relation to time limits for implementation.*

(2) *The Regulator may require an undertaking providing public communications networks or publicly available electronic communications services to—*

(a) *provide information needed to assess the security or integrity of their services and networks, including documented security policies, and*

(b) *submit to a security audit to be carried out by a qualified independent body nominated by the Regulator and make the results of the audit available to the Regulator and the Minister. The cost of the audit is to be borne by the undertaking.*

(3) *An undertaking in receipt of a direction under paragraph (1) shall comply with the direction.*

(4) *An undertaking that fails to comply with a direction under paragraph (1) or a requirement under paragraph (2) commits an offence.*

A2.2.2 Authorisation Regulations

Decision to limit rights of use for radio frequencies

A 2.42 Regulation 9(2) of the Authorisation Regulations provides that ComReg may grant individual rights of use for radio frequencies by way of a licence where it considers that one or more of the following criteria are applicable:

- it is necessary to avoid harmful interference;
- it is necessary to ensure technical quality of service;
- it is necessary to safeguard the efficient use of spectrum; or
- it is necessary to fulfil other objectives of general interest as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law.

A 2.43 Regulation 9(10) of the Authorisation Regulations provides that ComReg must not limit the number of rights of use for radio frequencies to be granted except where this is necessary to ensure the efficient use of radio

frequencies in accordance with Regulation 11.

A 2.44 Regulation 9(7) also provides that:

- where individual rights of use for radio frequencies are granted for a period of 10 years or more and such rights may not be transferred or leased between undertakings in accordance with Regulation 19 of the Framework Regulations, ComReg must ensure that criteria set out in Regulation 9(2) apply for the duration of the rights of use, in particular upon a justified request from the holder of the right.
- where ComReg determines that the criteria referred to in Regulation 9(2) are no longer applicable to a right of use for radio frequencies, ComReg must, after a reasonable period and having notified the holder of the individual rights of use, change the individual rights of use into a general authorisation or must ensure that the individual rights of use are made transferable or leasable between undertakings in accordance with Regulation 19 of the Framework Regulations.

Publication of procedures

A 2.45 Regulation 9(4)(a) of the Authorisation Regulations requires that ComReg, having regard to the provisions of Regulation 17 of the Framework Regulations, establish open, objective, transparent, non-discriminatory and proportionate procedures for the granting of rights of use for radio frequencies and cause any such procedures to be made publicly available.

Duration of rights of use for radio frequencies

A 2.46 Regulation 9(6) of the Authorisation Regulations provides that rights of use for radio frequencies must be in force for such period as ComReg considers appropriate having regard to the network or service concerned in view of the objective pursued taking due account of the need to allow for an appropriate period for investment amortisation.

Conditions attached to rights of use for radio frequencies

A 2.47 Regulation 9(5) of the Authorisation Regulations provides that, when granting rights of use for radio frequencies, ComReg must, having regard to the provisions of Regulations 17 and 19 of the Framework Regulations, specify whether such rights may be transferred by the holder of the rights and under what conditions such a transfer may take place.

A 2.48 Regulation 10(1) of the Authorisation Regulations provides that, notwithstanding Section 5 of the Wireless Telegraphy Act, 1926, but subject

to any regulations under Section 6 of that Act, ComReg may only attach those conditions listed in Part B of the Schedule to the Authorisation Regulations. Part B lists the following conditions which may be attached to rights of use:

- Obligation to provide a service or to use a type of technology for which the rights of use for the frequency has been granted including, where appropriate, coverage and quality requirements.
- Effective and efficient use of frequencies in conformity with the Framework Directive and Framework Regulations.
- Technical and operational conditions necessary for the avoidance of harmful interference and for the limitation of exposure of the general public to electromagnetic fields, where such conditions are different from those included in the general authorisation.
- Maximum duration in conformity with Regulation 9, subject to any changes in the national frequency plan.
- Transfer of rights at the initiative of the rights holder and conditions of such transfer in conformity with the Framework Directive.
- Usage fees in accordance with Regulation 19.
- Any commitments which the undertaking obtaining the usage right has made in the course of a competitive or comparative selection procedure.
- Obligations under relevant international agreements relating to the use of frequencies.
- Obligations specific to an experimental use of radio frequencies.

A 2.49 Regulation 10(2) also requires that any attachment of conditions under Regulation 10(1) to rights of use for radio frequencies must be non-discriminatory, proportionate and transparent and in accordance with Regulation 17 of the Framework Regulations.

Procedures for limiting the number of rights of use to be granted for radio frequencies

A 2.50 Regulation 11(1) of the Authorisation Regulations provides that, where ComReg considers that the number of rights of use to be granted for radio frequencies should be limited it must, without prejudice to Sections 13 and

37 of the 2002 Act:

- give due weight to the need to maximise benefits for users and to facilitate the development of competition, and
- give all interested parties, including users and consumers, the opportunity to express their views in accordance with Regulation 12 of the Framework Regulations.

A 2.51 Regulation 11(2) of the Authorisation Regulations requires that, when granting the limited number of rights of use for radio frequencies it has decided upon, ComReg does so “...on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate and which give due weight to the achievement of the objectives set out in Section 12 of the 2002 Act and Regulations 16 and 17 of the Framework Regulations.”

A 2.52 Regulation 11(4) provides that where it decides to use competitive or comparative selection procedures, ComReg must, inter alia, ensure that such procedures are fair, reasonable, open and transparent to all interested parties.

Fees for spectrum rights of use

A 2.53 Regulation 19 of the Authorisation Regulations permits ComReg to impose fees for rights of use which reflect the need to ensure the optimal use of the radio frequency spectrum.

A 2.54 ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations.

Amendment of rights and obligations

A 2.55 Regulation 15 of the Authorisation Regulations permits ComReg to amend rights and conditions concerning rights of use, provided that any such amendments may only be made in objectively justified cases and in a proportionate manner, following the process set down in Regulation 15(4).

A2.3 Other Relevant Provisions

Wireless Telegraphy Act, 1926 (the “1926 Act”)

A 2.56 Under Section 5(1) of the 1926 Act, ComReg may, subject to that Act, and

on payment of the prescribed fees (if any), grant to any person a licence to keep and have possession of apparatus for wireless telegraphy in any specified place in the State.

A 2.57 Section 5(2) provides that, such a licence shall be in such form, continue in force for such period and be subject to such conditions and restrictions (including conditions as to suspension and revocation) as may be prescribed in regard to it by regulations made by ComReg under Section 6.

A 2.58 Section 5(3) also provides that, where it appears appropriate to ComReg, it may, in the interests of the efficient and orderly use of wireless telegraphy, limit the number of licences for any particular class or classes of apparatus for wireless telegraphy granted under Section 5.

A 2.59 Section 6 provides that ComReg may make regulations prescribing in relation to all licences granted by it under Section 5, or any particular class or classes of such licences, all or any of the following matters:

- the form of such licences;
- the period during which such licences continue in force;
- the manner in which, the terms on which, and the period or periods for which such licences may be renewed;
- the circumstances in which or the terms under which such licences are granted;
- the circumstances and manner in which such licences may be suspended or revoked by ComReg;
- the terms and conditions to be observed by the holders of such licences and subject to which such licences are deemed to be granted;
- the fees to be paid on the application, grant or renewal of such licences or classes of such licences, subject to such exceptions as ComReg may prescribe, and the time and manner at and in which such fees are to be paid; and
- matters which such licences do not entitle or authorise the holder to do.

A 2.60 Section 6(2) provides that Regulations made by ComReg under Regulation 6 may authorise and provide for the granting of a licence under Section 5 subject to special terms, conditions, and restrictions to persons who satisfy

it that they require the licences solely for the purpose of conducting experiments in wireless telegraphy.

A 2.61 Regulation 10(1) of the Authorisation Regulations provides that, notwithstanding section 5 of the Act of 1926 but subject to any regulations made under section 6 of that Act, where ComReg attaches conditions to rights of use for radio frequencies, it may only attach such conditions as are listed in Part B of the Schedule to the Authorisation Regulations.

Broadcasting Act 2009 (the “2009 Act”)

A 2.62 Section 132 of the 2009 Act relates to the duties of ComReg in respect of the licensing of spectrum for use in establishing digital terrestrial television multiplexes and places an obligation on ComReg to issue:

- two DTT multiplex licences to RTÉ by request (see Sections 132(1) and (2) of the 2009 Act); and
- a minimum of four DTT multiplex licences to the BAI by request (see Sections 132(3) and (4) of the 2009 Act) for the provision of commercial TV content.

Article 4 of Directive 2002/77/EC (Competition Directive)

A 2.63 Article 4 of the Competition Directive provides that:

“Without prejudice to specific criteria and procedures adopted by Member States to grant rights of use of radio frequencies to providers of radio or television broadcast content services with a view to pursuing general interest objectives in conformity with Community law:

- *Member States shall not grant exclusive or special rights of use of radio frequencies for the provision of electronic communications services.*
- *The assignment of radio frequencies for electronic communication services shall be based on objective, transparent, non-discriminatory and proportionate criteria.”*

Radio Spectrum Policy Programme

A 2.64 On 15 February 2012, the European Parliament adopted the five-year Radio Spectrum Policy Programme (“RSPP”) which establishes a multi-annual radio spectrum policy programme for the strategic planning and harmonisation of the use of spectrum. The objective is to ensure the

functioning of the internal market in the Union policy areas involving the use of spectrum, such as electronic communications, research, technological development and space, transport, energy and audiovisual policies.

A 2.65 Among other things, Article 5 of the RSP, entitled “Competition”, provides:

“1. Member States shall promote effective competition and shall avoid distortions of competition in the internal market for electronic communications services in accordance with Directives 2002/20/EC and 2002/21/EC.

They shall also take into account competition issues when granting rights of use of spectrum to users of private electronic communication networks.

2. For the purposes of the first subparagraph of paragraph 1 and without prejudice to the application of competition rules and to the measures adopted by Member States in order to achieve general interest objectives in accordance with Article 9(4) of Directive 2002/21/EC, Member States may adopt, inter alia, measures:

(a) limiting the amount of spectrum for which rights of use are granted to any undertaking, or attaching conditions to such rights of use, such as the provision of wholesale access, national or regional roaming, in certain bands or in certain groups of bands with similar characteristics, for instance the bands below 1 GHz allocated to electronic communication services. Such additional conditions may be imposed only by the competent national authority;

(b) reserving, if appropriate in regard to the situation in the national market, a certain part of a frequency band or group of bands for assignment to new entrants;

(c) refusing to grant new rights of use of spectrum or to allow new spectrum uses in certain bands, or attaching conditions to the grant of new rights of use of spectrum or to the authorisation of new spectrum uses, in order to avoid the distortion of competition by any assignment, transfer or accumulation of rights of use;

(d) prohibiting or imposing conditions on transfers of rights of use of spectrum, not subject to national or Union merger control, where such transfers are likely to result in significant harm to competition;

(e) amending the existing rights in accordance with Directive 2002/20/EC where this is necessary to remedy ex post the distortion

of competition by any transfer or accumulation of rights of use of radio frequencies.

3. Where Member States wish to adopt any measures referred to in paragraph 2 of this Article, they shall act in conformity with the procedures for the imposition or variation of such conditions on the rights of use of spectrum laid down in Directive 2002/20/EC.

4. Member States shall ensure that the authorisation and selection procedures for electronic communications services promote effective competition for the benefit of citizens, consumers and businesses in the Union.”

Annex: 3 Requests from Operators

Eircom Limited and Meteor Mobile Communications Limited (trading as 'eir' and 'open eir'), collectively referred to as 'eir Group' or 'eir'



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eir.ie

Jeremy Godfrey
Commissioner
Commission for Communications Regulation
1 Dockland Central
Guild Street
Dublin 1
D01 E4X0

By email only: jeremy.godfrey@comreg.ie

24th March 2020

Re: Network operations and use of spectrum to ensure network continuity in the context of Covid-19

Dear Jeremy,

We the CEOs of Ireland's mobile access networks are writing this common letter to you in light of the unprecedented times we have found ourselves in. Due to Covid 19, across the majority of sectors, workers are being encouraged (if not required) to work from home. We have also seen a significant change to normal predictable patterns of behaviour and use of telecommunications networks. With social distancing in operation, the use of electronic communications is assuming a more important role in day to day life and working arrangements for everyone. Each network has already seen growth in traffic. It is essential that we all do everything that is feasible to keep the networks operating at this time, and in particular in the coming weeks when it is expected that matters might even deteriorate. We need to prepare our networks to cope with further increases in demand, and to also relieve any localised congestion wherever we can.

New infrastructure cannot be built at short notice, so operators must look to whatever tools they have available to optimise networks to the current situation. We all have already adjusted network configuration to the extent that we can (e.g. adjustments to capacity). We now need to look to other options that are available to us to increase network capacity. The next item to examine is the radio spectrum that we use, as changes in this area could help to substantially increase network capacity, particularly in targeted/congested areas.

Radio bands that could be used to increase network capacity are:

700MHz – recently vacated and available for immediate use

2100MHz – currently in use but restricted to 3G only by licence

2600MHz – available in limited areas with due regard to ensuring no interference to the existing radar that use adjoining frequencies.



We now request that ComReg take immediate action to allow operators to use the 700MHz with dedicated allocations for each operator, to allow the use of 2600MHz for specified hotspots and to allow liberalised use of 2100MHz bands for each operator as required on a temporary basis to provide additional capacity in their networks.

For 700MHz this would take the form of a simple assignment of the spectrum to existing mobile operators through short term licences. The assignment process should require no more than an indication from operators that they wish to receive a 700MHz temporary licence, and the amount of spectrum required. There should be no licence fee or only a nominal one. It is important that this assignment of 700MHz does not cause any interference to the existing 800MHz services. The operators will work together to agree a protocol to ensure that 700MHz can be brought into service on a temporary basis without causing interference and will manage this process between them. There are 6 blocks of 2x5MHz duplex spectrum available in the band. The operators have agreed that at this time it appears that the optimum assignment to minimise cross-network interference is to allocate the blocks in the same order that exists in the 800MHz band, i.e. Blocks 1-2 to eir; Blocks 3 and 4 to Three; and Blocks 5 and 6 to Vodafone. Our request is for ComReg to allocate the Blocks in that order.

For 2100MHz, ComReg should simply amend the existing licences to liberalise them, i.e. the 3G restriction should be removed. After this it should be up to operators to determine how to use the spectrum as their networks allow/demand.

For 2600MHz we suggest operators are allocated spectrum but make application to ComReg for individual sites where they will use this. We envisage this being particularly useful to serve any temporary medical facilities established during the current crisis.

Our request is for temporary measures during the national crisis. Once the crisis has passed as determined by the Minister, the use of 700MHz, and 2600MHz will stop and the 2100MHz licences revert to 3G use only. The longer term questions of access to 700MHz, 2600MHz, and liberalisation of 2.1GHz spectrum will be determined through other policy initiatives.

We understand ComReg's position is that it might need to conduct a short consultation on the above matter, and to have amending Regulations signed, however under the current circumstances this needs to be completed in a matter of days and we are supportive of a rapid consultation exercise if deemed necessary.

This common letter is being sent to underscore the importance of ComReg taking action on the matter. Individual operators might need to write to ComReg individually to indicate their particular requirements and to individually request an assignment of 700MHz spectrum. We look forward to further engagement with ComReg on the process to be followed to give the mobile network operators contingent flexibility. As requested by George Merrigan on 20th March, we can jointly indicate the following:



The risk of congestion and the locations where it is most likely to arise:

- All mobile networks use a finite amount of spectrum to provide connectivity to their end users. That spectrum is a limiting factor for network capacity.
- All mobile networks have witnessed a growth in both voice and data traffic during the past 10 days. We are seeing shifting time of day usage patterns, and geographic locations of use. We also see customers (consumer and business) using OTT collaboration tools driving increased data usage. We expect this to increase as more of our customers work remotely.
- Millions of people have depended on the mobile networks over the past 10 days to maintain their work and family connections. This will continue and traffic will grow if the crisis deepens.
- While existing areas likely to be susceptible to congestion are known this might change under the current circumstances and is difficult to predict.

The ways in which temporary variations of licence conditions or assignment of rights of use would be useful:

- Mobile networks need to have capacity “headroom” to maintain quality of service. Congestion on mobile networks would lead to dropped calls or dropped data sessions resulting in inability to reliably connect to the internet or to make calls when required. To some extent, congestion can also feed on to cause congestion on other interconnected networks.
- The additional spectrum and liberalisation can be utilised to augment 4G capacity for data services, whilst providing additional flexibility to manage voice capacity from existing allocations.

The lead time to take advantage of such varied or additional rights of use:

- Operators can add additional data capacity by converting installed 2100MHz spectrum to 4G. Decisions on this would need to be made by individual operators on a site by site basis in order to optimise their capacity for voice vs data. Operators can also add capacity to their networks by deploying 700MHz or 2600MHz spectrum. Each operator will need to communicate individually to ComReg regarding their own ability to deploy either solution. Where operators have capable equipment in place the spectrum can be quickly enabled by way of software updates.

The risks that would be involved in making changes to networks:

- In many respects this is business as usual for our network operations teams. Operators will undertake network modifications to utilize the contingent flexibility in a manner that minimises risk to existing services. Whilst implementation is a matter for each operator individually as noted above, the measures can in some cases be implemented very simply and effectively on some sites.
- There is a risk that use of 700MHz will cause some interference to existing 800 and 900MHz services. However, this can be managed by normal operating processes among operators. Each operator will inform the other operators of any



new usage of 700MHz and cease use on that specific site if any interference is caused. A joint protocol on this matter will be developed between operators over the coming days.

The information operators would envisage providing to ComReg to demonstrate that the time had come to trigger a temporary variation of licence conditions or assignment of new rights of use:

- We strongly believe that the contingent measures for 700MHz and 2100MHz should be implemented on a national basis for each operator. Operators can then utilise the flexibility as required according to their specific circumstances.
- This approach is administratively efficient as it does not require approval to be considered and granted on a site by site basis (except for 2600MHz).
- Operators will advise ComReg of sites where the flexibility measures have been implemented.
- The next few weeks will be uncertain and we urge ComReg to rapidly put the measures in place and facilitate the mobile operators in responding effectively to capacity challenges, should they emerge.

Finally, we the mobile access network operators are of the view that we already have a requirement for ComReg to take the measures outlined above. It is a measure that could increase mobile network capacity at the time when it is most needed, and it is within ComReg's ability to do so quickly. Failure to act at this point could unnecessarily risk congestion to mobile networks.

We trust you will recognise the urgency of this request and we assure you we are ready to cooperate with ComReg to facilitate its delivery.

Yours sincerely,

Carolan Lennon
CEO

Three Ireland (Hutchison) Limited



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

Jeremy Godfrey
Commissioner
Commission for Communications Regulation
One Dockland Central
Guild Street
Dublin 1

Tuesday, 24th March 2020

Network operations and use of spectrum to ensure network continuity in the context of Covid-19

Dear Jeremy,

We the CEOs of Ireland's mobile access networks are writing this common letter to you in light of the unprecedented times we have found ourselves in. Due to Covid 19, across the majority of sectors, workers are being encouraged (if not required) to work from home. We have also seen a significant change to normal predictable patterns of behaviour and use of telecommunications networks. With social distancing in operation, the use of electronic communications is assuming a more important role in day to day life and working arrangements for everyone. Each network has already seen growth in traffic. It is essential that we all do everything that is feasible to keep the networks operating at this time, and in particular in the coming weeks when it is expected that matters might even deteriorate. We need to prepare our networks to cope with further increases in demand, and to also relieve any localised congestion wherever we can.

New infrastructure cannot be built at short notice, so operators must look to whatever tools they have available to optimise networks to the current situation. We all have already adjusted network configuration to the extent that we can (e.g. adjustments to capacity). We now need to look to other options that are available to us to increase network capacity. The next item to examine is the radio spectrum that we use, as changes in this area could help to substantially increase network capacity, particularly in targeted/congested areas.

Radio bands that could be used to increase network capacity are:

- 700MHz – recently vacated and available for immediate use
- 2100MHz – currently in use but restricted to 3G only by licence
- 2600MHz – available in limited areas with due regard to ensuring no interference to the existing radar that use adjoining frequencies.



We now request that ComReg take immediate action to allow operators to use the 700MHz band with dedicated allocations for each operator, to allow the use of 2600MHz for specified hotspots and to allow liberalised use of 2100MHz bands for each operator as required on a temporary basis to provide additional capacity in their networks.

For 700MHz this would take the form of a simple assignment of the spectrum to existing mobile operators through short term licences. The assignment process should require no more than an indication from operators that they wish to receive a 700MHz temporary licence, and the amount of spectrum required. There should be no licence fee or only a nominal one. It is important that this assignment of 700MHz does not cause any interference to the existing 800MHz services. The operators will work together to agree a protocol to ensure that 700MHz can be brought into service on a temporary basis without causing interference and will manage this process between them. There are 6 blocks of 2x5MHz duplex spectrum available in the band. The operators have agreed that at this time it appears that the optimum assignment to minimise cross-network interference is to allocate the blocks in the same order that exists in the 800MHz band, i.e. Blocks 1 and 2 to Eir; Blocks 3 and 4 to Three; and Blocks 5 and 6 to Vodafone. Our request is for ComReg to allocate the Blocks in that order.

For 2100MHz, ComReg should simply amend the existing licences to liberalise them, i.e. the 3G restriction should be removed. After this it should be up to operators to determine how to use the spectrum as their networks allow/demand.

For 2600MHz we suggest operators are allocated spectrum but make application to ComReg for individual sites where they will use this. We envisage this being particularly useful to serve any temporary medical facilities established during the current crises.

Our request is for temporary measures during the national crisis. Once the crisis has passed as determined by the Minister, the use of 700MHz, and 2600MHz will stop and the 2100MHz licences revert to 3G use only. The longer-term questions of access to 700MHz, 2600MHz, and liberalisation of 2.1GHz spectrum will be determined through other policy initiatives.

We understand ComReg's position is that it might need to conduct a short consultation on the above matter, and to have amending Regulations signed, however under the current circumstances this needs to be completed in a matter of days and we are supportive of a rapid consultation exercise if deemed necessary.

This common letter is being sent to underscore the importance of ComReg taking action on the matter. Individual operators might need to write to ComReg individually to indicate their particular requirements and to individually request an assignment of 700MHz spectrum. We look forward to further engagement with ComReg on the process to be followed to give the mobile network operators contingent flexibility.



As requested by George Merrigan on 20th March, we can jointly indicate the following:

The risk of congestion and the locations where it is most likely to arise:

- All mobile networks use a finite amount of spectrum to provide connectivity to their end users. That spectrum is a limiting factor for network capacity.
- All mobile networks have witnessed a growth in both voice and data traffic during the past 10 days. We are seeing shifting time of day usage patterns, and geographic locations of use. We also see customers (consumer and business) using OTT collaboration tools driving increased data usage. We expect this to increase as more of our customers work remotely.
- Millions of people have depended on the mobile networks over the past 10 days to maintain their work and family connections. This will continue and traffic will grow if the crisis deepens.
- While existing areas likely to be susceptible to congestion are known this might change under the current circumstances and is difficult to predict.

The ways in which temporary variations of licence conditions or assignment of rights of use would be useful:

- Mobile networks need to have capacity “headroom” to maintain quality of service. Congestion on mobile networks would lead to dropped calls or dropped data sessions resulting in inability to reliably connect to the internet or to make calls when required. To some extent, congestion can also feed on to cause congestion on other interconnected networks.
- The additional spectrum and liberalisation can be utilised to augment 4G capacity for data services, whilst providing additional flexibility to manage voice capacity from existing allocations.

The lead time to take advantage of such varied or additional rights of use

- Operators can add additional data capacity by converting installed 2100MHz spectrum to 4G. Decisions on this would need to be made by individual operators on a site by site basis in order to optimise their capacity for voice vs data. Operators can also add capacity to their networks by deploying 700MHz or 2600MHz spectrum. Each operator will need to communicate individually to ComReg regarding their own ability to deploy either solution. Where operators have capable equipment in place the spectrum can be quickly enabled by way of software updates.

The risks that would be involved in making changes to networks:

- In many respects this is business as usual for our network operations teams. Operators will undertake network modifications to utilize the contingent flexibility in a manner that minimises risk to existing services. Whilst implementation is a matter for each operator individually as noted above, the measures can in some cases be implemented very simply and effectively on some sites.



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

- There is a risk that use of 700MHz will cause some interference to existing 800 and 900MHz services. However, this can be managed by normal operating processes among operators. Each operator will inform the other operators of any new usage of 700MHz and cease use on that specific site if any interference is caused. A joint protocol on this matter will be developed between operators over the coming days.

The information operators would envisage providing to ComReg to demonstrate that the time had come to trigger a temporary variation of licence conditions or assignment of new rights of use:

- We strongly believe that the contingent measures for 700MHz and 2100MHz should be implemented on a national basis for each operator. Operators can then utilise the flexibility as required according to their specific circumstances.
- This approach is administratively efficient as it does not require approval to be considered and granted on a site by site basis (except for 2600MHz).
- Operators will advise ComReg of sites where the flexibility measures have been implemented.
- The next few weeks will be uncertain and we urge ComReg to rapidly put the measures in place and facilitate the mobile operators in responding effectively to capacity challenges, should they emerge.

Finally, we the mobile access network operators are of the view that we already have a requirement for ComReg to take the measures outlined above. It is a measure that

could increase mobile network capacity at the time when it is most needed, and it is within ComReg's ability to do so quickly. Failure to act at this point could unnecessarily risk congestion to mobile networks.

We trust you will recognise the urgency of this request and we assure you we are ready to cooperate with ComReg to facilitate its delivery.

Sincerely,

Robert Finnegan
CEO, Three

Vodafone Ireland Limited



23rd March 2020

Jeremy Godfrey
Commissioner
Commission for Communications Regulation
One Dockland Central
Guild Street
Dublin 1

Dear Jeremy

Network operations and use of spectrum to ensure network continuity in the context of Covid-19

We the CEOs of Ireland's mobile access networks are writing this common letter to you in light of the unprecedented times we have found ourselves in. Due to Covid 19, across the majority of sectors, workers are being encouraged (if not required) to work from home. We have also seen a significant change to normal predictable patterns of behaviour and use of telecommunications networks. With social distancing in operation, the use of electronic communications is assuming a more important role in day to day life and working arrangements for everyone. Each network has already seen growth in traffic. It is essential that we all do everything that is feasible to keep the networks operating at this time, and in particular in the coming weeks when it is expected that matters might even deteriorate. We need to prepare our networks to cope with further increases in demand, and to also relieve any localised congestion wherever we can.

New infrastructure cannot be built at short notice, so operators must look to whatever tools they have available to optimise networks to the current situation. We all have already adjusted network configuration to the extent that we can (e.g. adjustments to capacity). We now need to look to other options that are available to us to increase network capacity. The next item to examine is the radio spectrum that we use, as changes in this area could help to substantially increase network capacity, particularly in targeted/congested areas.

Radio bands that could be used to increase network capacity are:

- 700MHz – recently vacated and available for immediate use
- 2100MHz – currently in use but restricted to 3G only by licence
- 2600MHz – available in limited areas with due regard to ensuring no interference to the existing radar that use adjoining frequencies.

We now request that ComReg take immediate action to allow operators to use the 700MHz with dedicated allocations for each operator, to allow the use of 2600MHz for specified hotspots and to allow liberalised use of 2100MHz bands for each operator as required on a temporary basis to provide additional capacity in their networks.

Vodafone Ireland Limited

MountainView, Leopardstown, Dublin, D18 XN97, Ireland
T - +353 (0)1 203 7777 W - www.vodafone.ie

Registered Office: MountainView, Leopardstown, Dublin, D18 XN97. Registered in Ireland No. 326967.
Directors: Anne O'Leary (CEO), Sinead Bryan and Liam O'Brien

For 700MHz this would take the form of a simple assignment of the spectrum to existing mobile operators through short term licences. The assignment process should require no more than an indication from operators that they wish to receive a 700MHz temporary licence, and the amount of spectrum required. There should be no licence fee or only a nominal one. It is important that this assignment of 700MHz does not cause any interference to the existing 800MHz services. The operators will work together to agree a protocol to ensure that 700MHz can be brought into service on a temporary basis without causing interference and will manage this process between them. There are 6 blocks of 2x5MHz duplex spectrum available in the band. The operators have agreed that at this time it appears that the optimum assignment to minimise cross-network interference is to allocate the blocks in the same order that exists in the 800MHz band, i.e. Blocks 1-2 to Eir; Blocks 3 and 4 to Three; and Blocks 5 and 6 to Vodafone. Our request is for ComReg to allocate the Blocks in that order.

For 2100MHz, ComReg should simply amend the existing licences to liberalise them, i.e. the 3G restriction should be removed. After this it should be up to operators to determine how to use the spectrum as their networks allow/demand.

For 2600MHz we suggest operators are allocated spectrum but make application to ComReg for individual sites where they will use this. We envisage this being particularly useful to serve any temporary medical facilities established during the current crises.

Our request is for temporary measures during the national crisis. Once the crisis has passed as determined by the Minister, the use of 700MHz, and 2600MHz will stop and the 2100MHz licences revert to 3G use only. The longer term questions of access to 700MHz, 2600MHz, and liberalisation of 2.1GHz spectrum will be determined through other policy initiatives.

We understand ComReg's position is that it might need to conduct a short consultation on the above matter, and to have amending Regulations signed, however under the current circumstances this needs to be completed in a matter of days and we are supportive of a rapid consultation exercise if deemed necessary.

This common letter is being sent to underscore the importance of ComReg taking action on the matter. Individual operators might need to write to ComReg individually to indicate their particular requirements and to individually request an assignment of 700MHz spectrum. We look forward to further engagement with ComReg on the process to be followed to give the mobile network operators contingent flexibility. As requested by George Merrigan on 20th March, we can jointly indicate the following:

The risk of congestion and the locations where it is most likely to arise:

- All mobile networks use a finite amount of spectrum to provide connectivity to their end users. That spectrum is a limiting factor for network capacity.
- All mobile networks have witnessed a growth in both voice and data traffic during the past 10 days. We are seeing shifting time of day usage patterns, and geographic locations of use. We also see customers (consumer and business) using OTT collaboration tools driving increased data usage. We expect this to increase as more of our customers work remotely.
- Millions of people have depended on the mobile networks over the past 10 days to maintain their work and family connections. This will continue and traffic will grow if the crisis deepens.

- While existing areas likely to be susceptible to congestion are known this might change under the current circumstances and is difficult to predict.

The ways in which temporary variations of licence conditions or assignment of rights of use would be useful:

- Mobile networks need to have capacity “headroom” to maintain quality of service. Congestion on mobile networks would lead to dropped calls or dropped data sessions resulting in inability to reliably connect to the internet or to make calls when required. To some extent, congestion can also feed on to cause congestion on other interconnected networks.
- The additional spectrum and liberalisation can be utilised to augment 4G capacity for data services, whilst providing additional flexibility to manage voice capacity from existing allocations.

The lead time to take advantage of such varied or additional rights of use

- Operators can add additional data capacity by converting installed 2100MHz spectrum to 4G. Decisions on this would need to be made by individual operators on a site by site basis in order to optimise their capacity for voice vs data. Operators can also add capacity to their networks by deploying 700MHz or 2600MHz spectrum. Each operator will need to communicate individually to ComReg regarding their own ability to deploy either solution. Where operators have capable equipment in place the spectrum can be quickly enabled by way of software updates.

The risks that would be involved in making changes to networks:

- In many respects this is business as usual for our network operations teams. Operators will undertake network modifications to utilize the contingent flexibility in a manner that minimises risk to existing services. Whilst implementation is a matter for each operator individually as noted above, the measures can in some cases be implemented very simply and effectively on some sites.
- There is a risk that use of 700MHz will cause some interference to existing 800 and 900MHz services. However, this can be managed by normal operating processes among operators. Each operator will inform the other operators of any new usage of 700MHz and cease use on that specific site if any interference is caused. A joint protocol on this matter will be developed between operators over the coming days.

The information operators would envisage providing to ComReg to demonstrate that the time had come to trigger a temporary variation of licence conditions or assignment of new rights of use:

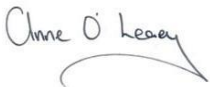
- We strongly believe that the contingent measures for 700MHz and 2100MHz should be implemented on a national basis for each operator. Operators can then utilise the flexibility as required according to their specific circumstances.
- This approach is administratively efficient as it does not require approval to be considered and granted on a site by site basis (except for 2600MHz).

- Operators will advise ComReg of sites where the flexibility measures have been implemented.
- The next few weeks will be uncertain and we urge ComReg to rapidly put the measures in place and facilitate the mobile operators in responding effectively to capacity challenges, should they emerge.

Finally, we the mobile access network operators are of the view that we already have a requirement for ComReg to take the measures outlined above. It is a measure that could increase mobile network capacity at the time when it is most needed, and it is within ComReg's ability to do so quickly. Failure to act at this point could unnecessarily risk congestion to mobile networks.

We trust you will recognise the urgency of this request and we assure you we are ready to cooperate with ComReg to facilitate its delivery.

Yours sincerely,

A handwritten signature in black ink that reads "Anne O'Leary". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

Anne O'Leary
CEO
Vodafone Ireland

Annex: 4 Draft temporary electronic communications services licensing regulations

Draft temporary electronic communications services licensing regulations

This annex contains a draft of the proposed regulations under the Wireless Telegraphy Act 1926, as amended, by which ComReg would implement its temporary licensing proposals in relation to the 700 MHz Duplex, 2.1 GHz and 2.6 GHz bands to address the temporary impact upon electronic communications networks and services from the extraordinary situation arising from COVID-19.

The making of these regulations, which would be made by ComReg under section 6 of the Wireless Telegraphy Act 1926, is expressly subject to the consent of the Minister for Communications, Climate Action and Environment under section 37 of the Communications Regulation Act 2002, as amended.

ComReg will take into account comments from interested parties when finalising the proposed regulations. ComReg may also make such editorial changes to the text of any final regulations as it considers necessary and without further consultation, where such changes would not affect the substance of the regulations.

S.I. No. XX of 2020

WIRELESS TELEGRAPHY (TEMPORARY ELECTRONIC COMMUNICATIONS SERVICES LICENCES) REGULATIONS 2020

Notice of the making of this Statutory Instrument was published in “Iris Oifigiúil” of [XX] 2020.

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 6(1) of the Wireless Telegraphy Act, 1926 (No. 45 of 1926) as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009), and with the consent of the Minister for Communications, Climate Action and Environment in accordance with section 37 of the Communications Regulation Act 2002 (No. 20 of 2002), hereby makes the following Regulations:

Citation

1. These Regulations may be cited as the Wireless Telegraphy (Temporary Electronic Communications Services Licences) Regulations 2020.

Interpretation

2. (1) In these Regulations:

“2.1 GHz Band” means radio frequency spectrum in the range 1920 to 1980 MHz paired with radio frequency spectrum in the range 2110 to 2170 MHz;

“2.1 GHz Band Block” means a 5 MHz paired block of radio frequency spectrum in the 2.1 GHz Band;

“2.6 GHz Band” means radio frequency spectrum in the range 2500 to 2690 MHz;

“2.6 GHz Band FDD Frequency Generic Block” means a 5 MHz block of radio frequency spectrum in the range 2500 to 2570 MHz paired with a 5 MHz block of radio frequency spectrum in the range 2620 to 2690 MHz;

“2.6 GHz Band TDD Fixed Frequency Block (Lower)” means the 5 MHz unpaired block of radio frequency spectrum in the range 2570 to 2575 MHz;

“2.6 GHz Band TDD Fixed Frequency Block (Upper)” means a 5 MHz unpaired block of radio frequency spectrum in the range 2615 to 2620 MHz;

“2.6 GHz Band TDD Frequency Generic Block” means a 5 MHz unpaired block of radio frequency spectrum in the range 2575 to 2615 MHz;

“2.6 GHz Band Blocks” means the 2.6 GHz Band FDD Frequency Generic Blocks and the 2.6 GHz Band TDD Blocks;

“2.6 GHz Band TDD Blocks” means the 2.6 GHz Band TDD Fixed Frequency Block (Lower), 2.6 GHz Band TDD Fixed Frequency Block (Upper) and 2.6 GHz Band TDD Frequency Generic Blocks;

“700 MHz Duplex” means radio frequency spectrum in the range 703 to 733 MHz paired with radio frequency spectrum in the range 758 to 788 MHz;

“700 MHz Duplex Block” means a 5 MHz paired block of radio frequency spectrum in the 700 MHz Duplex;

“Act of 1926” means the Wireless Telegraphy Act 1926 (No. 45 of 1926);

“Act of 1972” means the Wireless Telegraphy Act, 1972 (No. 5 of 1972);

“Act of 2002” means the Communications Regulation Act 2002 (No. 20 of 2002);

“Apparatus” in relation to Licences means apparatus for wireless telegraphy as defined in section 2 of the Act of 1926 for terrestrial systems capable of providing Electronic Communications Services;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011);

“Commission” means the Commission for Communications Regulation established under the Act of 2002;

“Decision of 2008” means European Commission Decision (2008/477/EC) of 13 June 2008 on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community;

“Decision of 2012” means European Commission Implementing Decision (2012/688/EU) of 5 November 2012 on the harmonisation of the frequency bands 1920-1980 MHz and 2110-2170 MHz for terrestrial systems capable of providing electronic communications services in the Union;

“Decision of 2016” means European Commission Implementing Decision (EU) 2016/687 of 28 April 2016 on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union;

“Electronic Communications Network” (“ECN”) and “Electronic Communications Service” (“ECS”) have the meanings assigned to them in the Framework Regulations;

“Equivalent Isotropically Radiated Power” (EIRP) means the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna;

“FDD” means Frequency Division Duplex;

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011);

“General Authorisation” means an authorisation for an undertaking to provide an Electronic Communications Network or Electronic Communications Service under and in accordance with Regulation 4 of the Authorisation Regulations;

“Harmful Interference” has the meaning set out in the Framework Regulations;

“Lease” means the assignment by a Licensee (“the Lessor”) of some or all of a right of use for radio frequencies granted under a Licence for a period less than the remaining duration of the right of use to another party (“the Lessee”), after which the right of use for radio frequencies reverts to the Lessor;

“Licence” means a non-exclusive licence granted under section 5 of the Act of 1926 in accordance with and subject to the matters prescribed in these Regulations to keep and have possession of Apparatus in a specified place in the State, being a Temporary Electronic Communications Services Licence;

“Licence Commencement Date” means the date, as specified in the Licence, upon which the Licence comes into effect;

“Licensee” means the holder of a Licence;

“Non-exclusive”, in relation to a Licence, means that the Commission is not precluded from authorising the keeping and having possession by persons other than the Licensee, on a Non-Interference and Non-Protected Basis, of apparatus for wireless telegraphy for the radio frequency spectrum specified in the Licence;

“Non-Interference and Non-Protected Basis” means that the use of apparatus for wireless telegraphy is subject to no Harmful Interference being caused to any Radiocommunication Service, and that no claim may be made for the protection of apparatus for wireless telegraphy used on this basis against Harmful Interference originating from Radiocommunication Services;

“Radio Equipment Regulations” means the European Union (Radio Equipment) Regulations 2017 (S.I. No. 248 of 2017);

“Radiocommunication Service” means a service as defined in the Radio Regulations of the International Telecommunication Union involving the transmission, emission or reception of radio waves for specific telecommunication purposes;

“TDD” means Time Division Duplex;

“Temporary Electronic Communications Services Licence” means a Licence in the form set out in Schedule 1 to keep and have possession of Apparatus, in accordance with and subject to the terms and conditions set out therein;

“Transfer” has the meaning set out in the Transfer Regulations;

“Transfer Regulations” means the Wireless Telegraphy (Transfer of Spectrum Rights of Use) Regulations 2014 (S.I. No. 34 of 2014); and

“Undertaking” has the same meaning set out in the Framework Regulations.

(2) A word or expression that is used in these Regulations and that is also used in the Act of 1926 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.

(3) A word or expression that is used in these Regulations and that is also used in the Act of 2002 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.

(4) A word or expression that is used in these Regulations and that is also used in the Framework Regulations or in the Authorisation Regulations has, unless the context otherwise requires, the same meaning in these Regulations that it has in those Regulations.

Licences to which these Regulations apply

3. (1) These Regulations apply to Temporary Electronic Communications Services Licences.

Application for the Grant and Form of Licences

4. (1) Application for the grant of a Licence shall be made by an Undertaking to the Commission in writing and in such form as may be determined by the Commission from time to time.

(2) The Commission may grant a Licence, following payment by the applicant of the relevant fee prescribed in Regulation 8, in accordance with the Authorisation Regulations and having regard to, among other things:

- (a) available information regarding the extraordinary situation arising from COVID-19 and, in particular, as it may reasonably affect Electronic Communications Networks and the provision of relevant Electronic Communications Services in the State;
 - (b) available information regarding the impact of the extraordinary situation arising from COVID-19 upon the capacity of the Electronic Communications Network operated by the Undertaking, including the locations in the State where any capacity constraints are occurring or are likely to occur;
 - (c) available information regarding how the rights of use of radio frequencies applied for by the Undertaking would reasonably and materially assist in alleviating the capacity constraints identified in sub-paragraph (b), including the lead time for the Undertaking to effectively make use of such rights of use of radio frequencies;
 - (d) available information regarding the risks to the provision of existing Electronic Communications Services, and the quality of such existing provision, by the Undertaking in making changes to its Electronic Communications Network to effectively make use of the rights of use of radio frequencies applied for;
 - (e) the need to encourage the efficient use and ensure the effective management of the radio frequency spectrum; and
 - (f) the Commission's obligations and objectives in relation to competition for the provision of Electronic Communications Networks and Electronic Communications Services.
- (3) An Undertaking who applies for the grant of a Licence shall furnish to the Commission such information as the Commission may reasonably require for the purposes of its functions under these Regulations, the Act of 1926, the Framework Regulations and/or the Authorisation Regulations, and if the Undertaking, without reasonable cause, fails to comply with this paragraph, the Commission may refuse to grant the Licence concerned to the Undertaking.
- (4) A Licence to which these Regulations apply shall be in the form specified in Schedule 1, with such variation, if any, whether by addition, deletion or alteration as the Commission may determine from time to time or in any particular case.

Duration of Licences

5. (1) The commencement date and expiry date of a Licence shall be set by the Commission and specified in the Licence.
- (2) The duration of any Licence granted under these Regulations shall be up to but no longer than three calendar months.

(3) Upon application being properly made in accordance with Regulation 4, the Commission may renew a Licence granted under these Regulations for a further period of up to but no longer than three calendar months.

(4) Any Licence granted or renewed under these Regulations shall expire no later than six calendar months from the date of these Regulations.

Conditions of Licences

6. (1) Any Licensee that is granted a Licence under these Regulations and to which these Regulations apply shall:

- (a) ensure that it complies with the conditions in its Licence and with these Regulations;
- (b) ensure that any Apparatus in the 700 MHz Duplex complies with the Decision of 2016, any Apparatus in the 2.1 GHz Band complies with the Decision of 2012, and any Apparatus in the 2.6 GHz Band complies with the Decision of 2008;
- (c) ensure that all Apparatus installed, maintained, possessed or kept under the Licence is capable of operating within the radio frequency spectrum specified in the Licence;
- (d) ensure that all Apparatus worked or used under the Licence is worked or used only in the radio frequency spectrum specified in the Licence;
- (e) ensure that it makes payment of the fee set out in and in accordance with Regulation 8;
- (f) furnish such information in respect of the Licence as may be requested by the Commission from time to time;
- (g) ensure that all Apparatus, or any part thereof, is installed, maintained, worked and used so as not to cause Harmful Interference;
- (h) ensure that all Apparatus, or any part thereof, complies with the Radio Equipment Regulations;
- (i) comply with any special conditions imposed under section 8 of the Act of 1972;
- (j) upon becoming aware of any event likely to materially affect its ability to comply with these Regulations, or any conditions set out or referred to in any Licence, notify the Commission of that fact in writing no later than 5 Working Days upon becoming aware;

- (k) comply with all obligations under relevant international agreements relating to the use of Apparatus or the frequencies to which they are assigned under a Licence; and
- (l) not Transfer or Lease any rights of use for radio frequencies attaching to a Licence.

Enforcement, Amendment, Withdrawal and Suspension

7. (1) Enforcement by the Commission of compliance by a Licensee with conditions attached to its Licence shall be in accordance with the Authorisation Regulations.

(2) The Commission may amend a Licence from time to time in accordance with the Authorisation Regulations having regard to, among other things, the factors set out in Regulation 4(2), and by giving the Licensee 5 days' notice in writing.

(3) A Licence may be suspended or withdrawn by the Commission in accordance with the Authorisation Regulations.

Licence Fees

8. (1) The fee for a Licence, or renewal of a Licence, is €100 and is non-refundable.

(2) Any payment to be paid by a Licensee under this Regulation shall be made by way of banker's draft or such other means and on such other terms, if any, as the Commission may decide.

Licensee to satisfy all legal requirements

9. (1) Licences granted pursuant to these Regulations do not grant to the Licensee any right, interest or entitlement other than to keep, have possession of, install, maintain, work and use Apparatus at a specified location or locations in the State.

SCHEDULE 1

WIRELESS TELEGRAPHY ACT, 1926

WIRELESS TELEGRAPHY (TEMPORARY ELECTRONIC COMMUNICATIONS SERVICES LICENCES) REGULATIONS 2020

Temporary Licence for terrestrial systems capable of providing Electronic Communications Services

Licence under section 5 of the Act of 1926 to keep and have possession of apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services.

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5 of the Act of 1926 hereby grants the following licence to **[LICENSEE NAME]** of **[LICENSEE ADDRESS]** (“the Licensee”).

The Licensee is hereby authorised to keep and have possession of apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services as specified in Part 2 of this Licence, subject to such apparatus being installed, maintained, worked and used in accordance with the terms, conditions and restrictions set out in the Wireless Telegraphy (Temporary Electronic Communications Services Licences) Regulations 2020 (S.I. No. of 2020) (“the Regulations”), including but not limited to, the following:

- (1) The Licensee shall ensure that it complies with all of the conditions contained within the Regulations and within Parts 1 to 4 of this Licence; and
- (2) The Licensee shall ensure that it makes payment of the fee detailed in the Regulations.

For the purpose of this Licence, the definitions set out in the Wireless Telegraphy (Temporary Electronic Communications Services Licences) Regulations 2020 apply.

This Licence shall come in to effect on **DD/MM/YYYY** (the “Licence Commencement Date”) and, subject to revocation, suspension or withdrawal, expires on **DD/MM/YYYY**.

Signed: _____

For and on behalf of the Commission for Communications Regulation

Date of Issue: _____

Part 1

Commencement and expiry dates of Spectrum Blocks

Authorised Band	Name of Spectrum Block	Frequency Assigned to Spectrum Block	Commencement Date per Spectrum Block	Expiry Date per Spectrum Block
700 MHz Duplex, 2.1 GHz, 2.6 GHz, as appropriate	Block A, B, C etc.	From ——— MHz to ——— MHz	DD Month YYYY	DD Month YYYY

Part 2

The Apparatus to which this Licence applies

Authorised Band	Equipment Index Reference	Terrestrial System	Equipment Description	Manufacturer	Model
700 MHz Duplex, 2.1 GHz, 2.6 GHz as appropriate					

Part 3

Apparatus Location and Details

Authorised Band	Site Identity	Eastings	Northings	Equipment Index Reference	Maximum EIRP
700 MHz Duplex, 2.1 GHz, 2.6 GHz as appropriate					

Part 4

Licence Conditions

Section 1: General

1. Harmful Interference

- (1) In the event of Harmful Interference, the affected Licensees shall exchange information with a view to resolving the Harmful Interference by mutual consent. Where resolution cannot be agreed between the affected Licensees, ComReg may mediate in accordance with its statutory functions, objectives and duties.

Section 2: Technical Conditions

1. Definitions

The following additional definitions shall apply to this Licence:

“Aeronautical Primary Radars” means apparatus (including “Star2000” and “TA10” models) providing primary aircraft detection used in airport surveillance networks at Dublin, Cork and Shannon airports;

“Base Station” means Apparatus connected to a backhaul network, which provides a Radiocommunication Service to Terminal Stations using spectrum in the 700 MHz Duplex, 2.1 GHz Band and 2.6 GHz Band;

“Block Edge Mask” or “BEM” is an emission mask that is defined as a function of frequency in relation to a ‘block edge’, the latter being the frequency boundary of a spectrum block for which rights of use are assigned to a Licensee. The BEM consists of several elements which are defined for certain measurement bandwidths.

“dBm” means decibels of power referenced to one milliwatt;

“Downlink” means transmissions from a Base Station to a Terminal Station;

“Indoor Small Cell” means a Base Station with an EIRP of less than or equal to 24 dBm per 20 MHz carrier that is located indoors either within a residential or non-residential property;

“Power Flux Density” or pfd (dBW/m²) equals the interference threshold at radar receiver input (measured in dBW) minus the radar antenna gain (measured in dBi) plus $10 \log(4\pi/\lambda^2)$, where λ is the wavelength in meters;

“Inter-Licensee Synchronisation Procedure” means the synchronisation procedure set out in Section 3;

“TDD-LTE” means the TDD variant of LTE (Long Term Evolution) technology;

“Terminal Station” means mobile user equipment and fixed customer premise equipment which communicate with a Base Station using spectrum in the 700 MHz Duplex, 2.1 GHz Band and 2.6 GHz Band; and

“Uplink” means transmissions from a Terminal Station to a Base Station.

2. Technical Conditions

(1) The 700 MHz Duplex

- (a) Only terrestrial systems compatible with the Decision of 2016 (as amended) can be worked and used in the 700 MHz Duplex.
- (b) The FDD mode of operation shall be used in the 700 MHz Duplex. The duplex spacing shall be 55 MHz with Terminal Station transmission (FDD uplink) located in the lower frequency band 703-733 MHz and Base Station transmission (FDD downlink) located in the upper frequency band 758-788 MHz.
- (c) The Licensee shall comply with all Memoranda of Understanding (‘MoU’)¹ agreed from time to time between the Commission and its neighbouring national regulatory authorities responsible for communications matters, in particular the Office of Communications (‘Ofcom’) in the UK, or its successor, in relation to spectrum in the 700 MHz Duplex.

Base Stations

- (d) Within a 700 MHz Duplex Block assigned to the Licensee, the in-block power from a Base Station must not exceed a maximum mean EIRP of 64 dBm/5 MHz per antenna.
- (e) Outside of the 700 MHz Duplex Block(s) assigned to the Licensee, the Licensee shall comply with the out-of-block BEM as specified in Section B “*Technical conditions for base stations for terrestrial systems capable of providing electronic communications services within the 738-788 MHz frequency band*” of the Annex to the Decision of 2016.

Terminal Stations

¹ [Memorandum of Understanding](#) on frequency coordination between Ireland and the United Kingdom concerning the spectrum coordination of Land Mobile Radio Communication Networks in the frequency range 703 MHz to 2690 MHz, available at www.comreg.ie

- (f) The maximum mean in-block power limit of 23 dBm for Terminal Stations shall apply².
- (g) The out-of-block technical conditions set out in Table 10 to Table 12 of the Annex to the Decision of 2016 shall apply.
- (h) where a Licensee holds more than 2×10 MHz in the 700 MHz Duplex and if this assignment is deployed starting at 703 MHz, the licensee shall not deploy a bandwidth greater than 10 MHz for Terminal Stations in order to meet the conditions as set out in Table 12 of the Annex to the Decision of 2016 to provide protection to the frequency range 470 - 694 MHz.

(2) The 2.1 GHz Band

- (a) Only terrestrial systems compatible with the Decision of 2012 (as amended) can be worked and used in the 2.1 GHz Band.
- (b) The duplex mode of operation shall be FDD. The duplex spacing shall be 190 MHz with Terminal Station transmission (FDD uplink) located in the lower part of the band starting at 1920 MHz and finishing at 1980 MHz and Base Station transmission (FDD downlink) located in the upper part of the band starting at 2110 MHz and finishing at 2170 MHz.
- (c) The Licensee shall comply with all Memoranda of Understanding ('MoU')³ agreed from time to time between the Commission and its neighbouring national regulatory authorities responsible for communications matters, in particular the Office of Communications ("Ofcom") in the UK, or its successor, in relation to the spectrum in the 2.1 GHz Band.

Base Stations

² This power limit is specified as EIRP for Terminal Stations designed to be fixed or installed and as total radiated power (TRP) for Terminal Stations designed to be mobile or nomadic. This value is subject to a tolerance of up to + 2 dB, to take account of operation under extreme environmental conditions and production spread.

³ [Memorandum of Understanding](#) on frequency coordination between Ireland and the United Kingdom concerning the spectrum coordination of Land Mobile Radio Communication Networks in the frequency range 703 MHz to 2690 MHz, available at www.comreg.ie

- (d) Within a 2.1 GHz Band Block assigned to the Licensee, the in-block radiated power from a Base Station transmitter in the downlink direction must not exceed an in-block EIRP power of 64 dBm/5 MHz per antenna.
- (e) Outside of the 2.1 GHz Band Block(s) assigned to the Licensee, the Licensee shall comply with the out-of-block BEM as specified in Table 1 and Table 2 of the Annex to the Decision of 2012.

Terminal Stations

- (f) The maximum mean in-block power limit over frequencies of FDD uplink of 24 dBm⁴ per 5 MHz for Terminal Stations shall apply⁵.

(3) The 2.6 GHz Band

- a) Only terrestrial systems compatible with the Decision of 2008 (as amended) can be worked and used in the 2.6 GHz Band.
- b) Within the 2.6 GHz Band FDD Frequency Generic Blocks, the duplex mode of operation is FDD, where the duplex spacing shall be 120 MHz with Terminal Station transmission (uplink) located in the lower part of the band starting at 2500 MHz (extending to 2570 MHz) and Base Station transmission (downlink) located in the upper part of the band starting at 2620 MHz.
- c) Within the 2570-2620 MHz frequency range of the 2.6 GHz Band, the duplex mode of operation is TDD.
- d) Licensees in the 2.6 GHz Band TDD Blocks are bound by the Inter-Licensee Synchronisation Procedure.
- e) The Licensee shall comply with all Memoranda of Understanding ('MoU')⁶ agreed from time to time between the Commission and its

⁴ For the determination of out of band emissions of terminals in CEPT Report 39 the maximum conducted transmit power of 23 dBm has been used as a reference.

⁵ This power limit is specified as EIRP for terminal stations designed to be fixed or installed and as TRP for terminal stations designed to be mobile or nomadic. EIRP and TRP are equivalent for isotropic antennas. It is recognised that this value may be subject to a tolerance defined in the harmonised standards to take account of operation under extreme environmental conditions and production spread.

⁶ [Memorandum of Understanding](#) on frequency coordination between Ireland and the United Kingdom concerning the spectrum coordination of Land Mobile Radio Communication Networks in the frequency range 703 MHz to 2690 MHz, available at www.comreg.ie

neighbouring national regulatory authorities responsible for communications matters, in particular the Office of Communications (“Ofcom”) in the UK, or its successor, in relation to 2.6 GHz Band.

Base Stations

- (a) Within a 2.6 GHz Band FDD Frequency Generic Block and a 2.6 GHz Band TDD Frequency Generic Block assigned to the Licensee, the in-block EIRP from a Base Station transmitter in the downlink direction must not exceed a maximum in-block EIRP of 61 dBm/5 MHz.
- (b) Within the 2.6 GHz Band TDD Fixed Frequency Block (lower) and 2.6 GHz Band TDD Fixed Frequency block (upper) assigned to the Licensee, the in-block EIRP from a Base Station transmitter in the downlink direction must not exceed a maximum in-block EIRP of 25 dBm/5 MHz.
- (c) Outside of 2.6 GHz Band FDD Frequency Generic Block(s) and 2.6 GHz Band TDD Frequency Generic Block(s) assigned to the Licensee, the Licensee shall comply with the unrestricted out-of-block EIRP BEM as specified in Table 1 to Table 3 of the Annex to the Decision of 2008.
- (d) Outside of the 2.6 GHz TDD Band Fixed Frequency Block (Lower) and 2.6 GHz TDD Band Fixed Frequency Block (Upper) assigned to the Licensee, the Licensee shall comply with the restricted EIRP BEM as specified in Table 4 and Table 5 of the Annex to the Decision of 2008.
- (e) Licensees of the 2.6 GHz TDD Band Fixed Frequency Block (Lower) and 2.6 GHz TDD Band Fixed Frequency Block (Upper) acknowledge and accept that usage of these blocks are subject to a greater risk of interference from adjacent blocks.
- (f) For all 2.6 GHz Band Blocks and in cases where antennas are placed indoors. Alternative parameters in line with Table 5 of the Annex to the Decision of 2008 shall be implemented, provided that at geographical borders with other Member States, Table 1 of the Annex to the Decision of 2008 applies, and that Table 4 of the Annex to the Decision of 2008 remains valid nationwide.
- (g) All Licensees in the 2.6 GHz Band must ensure protection of all Aeronautical Primary Radars⁷ as follows:

⁷ Aeronautical radar locations (Dublin, Shannon and Cork) and technical parameters are detailed in Plum Report, Document 19/124c and Document 19/59c.

- a. Observe a coordination zone of 1 km around the Aeronautical Primary Radars to provide additional protection from Base Station transmission;
- b. in relation to the Star2000 radars, with locations as set out in Chapter 3 of ComReg Document 19/59c⁸, the Licensee shall:
 - comply with a Power Flux Density (pfd) limit on out-of-band Base Station emissions of -145 dBW/m²/MHz for per operator at the radar antenna to address the impact of MFCN spurious emissions; and
 - ensure that an additional out of band Base Station pfd limit of -83 dBW/m² be adhered to, to address the impact of blocking and intermodulation effects at radar receivers until notified that filters are installed at the Aeronautical Primary Radar.
- c. in relation to the TA10 radar, with a location as set out in Chapter 5 Document 19/124c⁹, the Licensee shall:
 - address the impact of spurious emissions by ensuring a Base Station pfd limit of -156 dBW/m²/MHz at the radar receiver antenna location; and
 - address the impact of blocking and intermodulation effects at radar receivers in the adjacent band by ensuring a Base Station pfd limit of -93 dBW/m² at the radar receiver, until otherwise notified.

Terminal Stations

- (h) The maximum mean in-block power (including Automatic Transmitter Power Control range) of 31 dBm/5 MHz TRP, and 35 dBm/5 MHz EIRP, shall apply to Terminal Stations¹⁰.

⁸ <https://www.comreg.ie/publication/plum-report-compatibility-study-in-preparation-for-the-award-of-the-2-6-ghz-band/>

⁹ <https://www.comreg.ie/publication/plum-consulting-update-on-2-3-ghz-and-2-6-ghz-coexistence-reports>

Section 3: Inter-Licensee Synchronisation Procedure

This Section 3 applies only to Licensees who have been assigned 2.6 GHz Band TDD Blocks.

1.1 Definitions

The following additional definitions shall apply in this section:

“Default Frame Structure” means the frame structure as detailed in Figure 1 below;

“Other Frame Structure” means a frame structure other than the Default Frame Structure;

“Unrestricted BEM” means: Operators utilising the Default Frame Structure on their network (and having a common reference phase clock with adjacent channel operators¹¹) are subject to the Unrestrictive BEM specified in the Annex of the Decision of 2008, “B. Unrestricted BEM for Base Stations”.

“Restrictive BEM” means: Operators utilising the Other Frame Structure (or failing to synchronise with adjacent channel networks for any other reason) are subject to the Restrictive BEM specified in the Annex of the Decision of 2008, “C. *Restricted BEM for Base Stations*” and “B. *Unrestricted BEM for Base Stations*”¹².

1.2 Introduction

1. Licensees with 2.6 GHz Band TDD Blocks shall be bound by the inter-Licensee synchronisation procedure set out in this Section 3.
2. Licensees shall co-operate in such a way that one network deployment within spectrum in the 2.6 GHz Band does not cause Harmful Interference to that of another Licensee.
3. This procedure sets out the circumstances in which Licensees may use the Unrestrictive BEM and the Restrictive BEM, so as to minimise the risk of Harmful Interference to other Licensees.

¹¹ Each operator needs to ensure the start of frame is aligned with adjacent channel operators above and below its assignment

¹² It is important to note that, in order to meet the restrictive mask, operators would likely have to adopt guard bands within their assignment.

1.3 Conditions for using the Unrestrictive BEM

4. Default Frame Structure - The technical conditions for Unrestrictive BEM shall apply where a Licensee's Base Station complies with the Default Frame Structure outlined below:
 - (a) Transmissions from a Licensee's Base Station(s) shall have a frame structure as shown in Figure 1. Indicated timeslots (or subframes) must not be allocated to anything other than Downlink (D) and Uplink (U) transmissions. 'S' denotes a special subframe. TD-LTE frame configuration 2 (Downlink: Uplink, 3:1) with special subframe configuration 6 or equivalent frame structures whose transmit and receive periods are aligned with this configuration are permitted;
 - (b) Timeslots shall have a duration of 1 millisecond; and
 - (c) Licensees shall ensure that frames start at a common reference time ($\pm 1.5 \mu\text{s}$) so that all Licensees' frames are aligned and transmissions synchronised.

DL/UL ratio	Timeslot or Subframe number									
	0	1	2	3	4	5	6	7	8	9
3:1	D	S	U	D	D	D	S	U	D	D

Figure 1: Default Frame Structure

1.4 Conditions for using the Restrictive BEM

5. Other Frame Structure — the technical conditions for Restrictive BEM shall apply where a Licensee's Base Station complies with the Other Frame Structure as outlined below:
6. All frame configurations that are not compatible with TD-LTE frame configuration 2 (3:1) with special sub-frame configuration 6 or equivalent frame structure whose transmit and receive periods are aligned with this configuration are permitted;
7. Licensees shall co-operate to minimise Harmful Interference caused by sub-frame overlaps if different technologies are used; and

8. Licensees using the Restrictive BEM shall not cause Harmful Interference to those Licensees' networks that use the Default Frame Structure (or equivalent). Achieving this may include applying internal guard bands and/or reduced in block power levels in blocks adjacent to those Licensees' networks that use the Default Frame Structure (or equivalent).

1.5 Indoor Small Cells

9. Indoor Small Cells with an EIRP not exceeding 24dBm for indoor domestic and other indoor locations are exempted from synchronisation restrictions. The Unrestrictive BEM set out in this Section applies to such Indoor Small Cells on the condition that they do not cause Harmful Interference to any other Licensees.

Section 4: Coverage Requirements

1. Coverage at specific locations in the State

Coverage	Location	Obligation
Outdoors	Specific locations in relation to the extraordinary situation arising from COVID-19 as may be determined from time to time by the Government and communicated to the Commission by the Department of Communications, Climate Action and the Environment	Best efforts using all rights of use available to the Licensee

Table 1: Outdoor coverage obligations at specific locations in relation to the extraordinary situation arising from COVID-19

GIVEN under the official seal of the Commission for Communications Regulation,

[DATE] 2020

[NAME of COMMISSIONER]

For and on behalf of the Commission for Communications Regulation

The Minister for Communications, Climate Action and Environment consents to the making of the foregoing Regulations.

GIVEN under the Official Seal of the Minister for Communications, Climate Action and Environment,

[DATE] 2020

[NAME OF MINISTER]

Minister for Communications, Climate Action and Environment.

Explanatory Note

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations prescribe matters in relation to temporary licences for apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services in the 700 MHz Duplex, the 2.1 GHz, the 2.6 GHz Bands to address the temporary impact upon Electronic Communications Networks and Electronic Communications Services from the extraordinary situation arising from COVID-19.

Annex: 5 IAA Initial Views

From: MCGRATH Patrick [mailto:Patrick.MCGRATH@IAA.ie]

Sent: 26 March 2020 17:19

To: Conor Berkeley ; Kevin Kennedy

Subject: RE: MNOs request for temporary access to the 2.6 GHz band for the Covid-19 emergency

Hi Conor,

Thanks for the opportunity to reply. I will outline the process below.

We would gather a technical case file including for example separation minima (3 mile in this case), safety nets, associated reports and human factor elements.

We then assess the impact to operations (air traffic services) which assists us with hazard identification, in this case a potential hazard would be corrupted radar data. As radar is used to separate aircraft this would carry a high severity risk to operations.

We then will carry out local safety processes with our safety management unit which would take approximately 6-8 weeks. It's important to note that a case like this would involve a broad section of disciplines from business, technical, safety and air traffic control. Validation that the services will operate as expected is also a requirement. Once completed we have a notification period to the national supervisory authority, who will ultimately approve the change from both a regulatory and safety perspective.

In this case, complex changes (i.e. major) require 90 working days in advance of date to put into operation.

Following on from this notification period there may an extended consultation period with the national supervisory authority in order to guarantee the safe provision of air traffic services.

Hope this helps.

Regards,

Paddy.

Patrick McGrath

National Aeronautical Frequency Manager

Irish Aviation Authority,

Control Tower Building,

Huntstown,

Co. Dublin,

K67 FD45

Ireland.



From: Conor Berkeley <conor.berkeley@comreg.ie>

Sent: 26 March 2020 16:13

To: MCGRATH Patrick <Patrick.MCGRATH@IAA.ie>; Kevin Kennedy <kevin.kennedy@comreg.ie>

Subject: RE: MNOs request for temporary access to the 2.6 GHz band for the Covid-19 emergency

Hi Patrick,

Good to talk with you earlier, following our discussion it is my understanding that the IAA have a number of processes which much be undertaken with regards to health and safety aspects, including technical assessment, before coordination with services in the 2.6 GHz could be approved.

It would be helpful in the context of our emergency consultation if you could provide further details on this process and set out timelines involved.

ComReg could then consider this as part of their proposal. Would you be in a position to provide this information by COB today?

Kind regards,
Conor

From: MCGRATH Patrick [<mailto:Patrick.MCGRATH@IAA.ie>]

Sent: 25 March 2020 12:26

To: Kevin Kennedy <kevin.kennedy@comreg.ie>

Cc: Conor Berkeley <conor.berkeley@comreg.ie>

Subject: RE: MNOs request for temporary access to the 2.6 GHz band for the Covid-19 emergency

Hi Kevin,

I hope all is well during these difficult times.

The Irish Aviation Authority welcomes the releasing of additional spectrum in order to ensure our nations critical services can continue to operate effectively through this pandemic.

We are willing to participate in talks to ensure the best communication solutions can be provided for. Some solutions may be constrained by technology. As you are aware our safety of life critical system that is most affected by the proposal of 4G rollout at 2.6Ghz is our radar systems.

IAA radar systems are currently operating along with our dedicated Air Traffic Control teams in order to maintain aviation's contribution to the supply chain for food, medicine, supplies and personnel during this pandemic not only for Ireland but as a gateway to our European neighbours and colleagues in USA and further afield.

I trust we can find a solution if required that allows all parties to continue to operate and provide for Ireland in these testing times.

Regards,

Paddy.

Patrick McGrath

National Aeronautical Frequency Manager

Irish Aviation Authority,

Control Tower Building,

Huntstown,

Co. Dublin,

K67 FD45

Ireland.



From: Kevin Kennedy <kevin.kennedy@comreg.ie>

Sent: 25 March 2020 10:36

To: MCGRATH Patrick <Patrick.MCGRATH@IAA.ie>

Cc: Conor Berkeley <conor.berkeley@comreg.ie>

Subject: MNOs request for temporary access to the 2.6 GHz band for the Covid-19 emergency

Importance: High

Paddy,

Attached is an "common letter" from the CEO of Eir requesting that ComReg consider providing the MNOs temporary access to three spectrum bands (700 MHz, 2.1 GHz and 2.6 GHz) for 3G/4G purposes for the duration of the Covid-19 emergency. The same "common letter" was submitted by Vodafone and Three.

In the letter you will see that the MNO's are cognisant of the current compatibility issue between the use of 2.6 GHz band and the IAA's primary radars (see extract below from the letter).

"2600MHz – available in limited areas with due regard to ensuring no interference to the existing radar that use adjoining frequencies."

In relation to the assignment of spectrum in the 2.6 Ghz band, the MNOs foresee this as site-by-site access (see extracts below from the letter)

“We now request that ComReg take immediate action to allow operators to use the 700MHz with dedicated allocations for each operator, to allow the use of 2600MHz for specified hotspots” [emphasis added]

“For 2600MHz we suggest operators are allocated spectrum but make application to ComReg for individual sites where they will use this. We envisage this being particularly useful to serve any temporary medical facilities established during the current crisis.” [emphasis added]

“This approach is administratively efficient as it does not require approval to be considered and granted on a site by site basis (except for 2600MHz).” [emphasis added]

To inform ComReg’s consideration of this matter, I would appreciate it, if the IAA would be able to consider the MNOs request in relation to the 2.6 GHz band and provide its view to ComReg.

Best Regards,

Kevin

Kevin Kennedy

Bainisteoir Sinsearach, Beartas & Forbairt Speictrim

Senior Manager, Spectrum Policy and Development

An Coimisiún um Rialáil Cumarsáide

Commission for Communications Regulation

1 Lárcheantar na nDugaí, Sráid na nGildeanna, BÁC 1, Éire, D01 E4X0.

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