An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Radio Spectrum Management Operating Plan for 2025 - 2028

Response to consultation on ComReg's Proposed Radio Spectrum Management Operating Plan for 2025 - 2028

Response to Consultation

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1 Introduction

1.1 Background and Purpose

1.1 The Commission for Communications Regulation ("ComReg") is the statutory body responsible for the regulation of the electronic communications (telecommunications, radiocommunication and broadcasting networks), postal and premium rate sectors in Ireland in accordance with European Union ("EU") and Irish law. ComReg also manages Ireland's radio spectrum (or "spectrum") and national numbering resource.

1.2 In August 2024, ComReg set out its Proposed Radio Spectrum Management Operating Plan ("RSMOP") for the period 2025 to 2028 ("Consultation 24/65")[1]. In Consultation 24/65, ComReg, among other things, reviewed the operating plan (otherwise known as a work plan) for the period (2022 to 2024) and set out its proposed radio spectrum work plan for the period 2025 to 2028.

1.3 Sixty-seven (67) submissions were received to Consultation 24/65, the non-confidential versions of which are published in Document 24/99s. The respondents are listed below in Annex 1.

1.4 Having carefully considered the responses received, this response to consultation document (Document 24/99), sets out ComReg's assessment of those responses and its final position regarding the radio spectrum management operating plan for the period 2025 to 2028 as set out in Document 24/99a.

1.2 Structure of this Document

1.5 The remainder of this document is structured as follows:

- **Chapter 2:** considers issues related to Mobile Fixed Communication Networks / Wireless Broadband ("MFCN/WBB") matters discussed in Chapters 4 and 6 of Consultation 24/65.
- **Chapter 3:** considers issues related to non-MFCN/WBB matters discussed in Chapter 6 of Consultation 24/65, such as satellite services; monitoring, compliance and enforcement; and amateur services.

[1] https://www.comreg.ie/publication/radio-spectrum-management-operating-plan-2025-2028

2 MFCN/WBB matters

2.1 Introduction

2.1 In Consultation 24/65, Chapter 4 set out ComReg's considerations on radio spectrum that can be used for MFCN/WBB services and in so doing reviewed ComReg's actions in the 2022-2024 period and progressively identified candidate MFCN work plan proposals for the 2025-2028 period.

2.2 ComReg's proposed spectrum work plan for MFCN/WBB for the period 2025-2028 was then set out in Section 6.2.2 of Consultation 24/65. This consisted of fourteen proposed work plan items as set out in paragraph 6.4 of that document.

2.3 Sixteen respondents commented on MFCN/WBB matters focussing on the following topics:

- The 26 GHz Band: (i) Potential use for MFCN/WBB services (ii) Existing use by National Block Licensing;
- Private 5G Networks (Local-area WBB);
- The 3.6 GHz band: Spectrum rights returned by Dense Air Ireland;
- The expiry of spectrum rights issued in the first Multi-Band Spectrum Award (MBSA1) in 2030;
- The 3.6 GHz band – expiry of licences in 2032; and
- Other Items, including:
  - The Draghi Report and EC White Paper discussing EU spectrum policy matters
  - The second Multi-Band Spectrum Award ("MBSA2")
  - The 2.6 GHz band and Air Nav Ireland Radars
  - The Upper 6 GHz band; and
  - The 42 GHz band

2.4 ComReg's consideration of the above matters is set out below.

2.2 The 26 GHz Band: (i) Potential use for MFCN/WBB (ii) Existing use for National Block Licences

2.2.1 Summary of Consultation 24/65

(i) Potential use of the 26 GHz band for MFCN/WBB services

2.5 In Section 4.3.6 of Consultation 24/65, ComReg set out its considerations on the use of the 26 GHz band for MFCN/WBB services where among other things, ComReg stated that:

"currently there is a lack of demand for spectrum in the 26 GHz band for MFCN/WBB services";

"access to spectrum in the 26 GHz band for test and trial purposes is available via Test and Trial Ireland"; and

"the 26 GHz Band is already well organised [see Figure 1 below] with three large tranches of unassigned spectrum, one of which is greater than 1 GHz, as would be required under Article 54(1)(b) of the EECC Directive, should there be clear evidence of demand". (emphasis added).

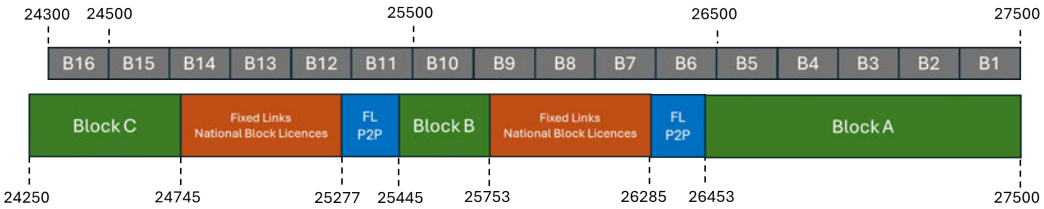


Figure 1: Band plan for 26 GHz band – valid as of July 2024 (Figure 20 of Consultation 24/65)

2.6 Paragraph 6.4 bullet (viii) set out ComReg's work plan proposal to:

"(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for MFCN/WBB use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for MFCN/WBB use. Spectrum in the 1.4 GHz band would be considered and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge." (emphasis added)

(ii) Existing use by 26 GHz National Block licensing and 2028 expiry

2.7 In Sections 4.3.6 and 6.2.7 of Consultation 24/65, ComReg noted that the 26 GHz band is currently used for fixed links and that in 2018 ComReg issued a 26 GHz National Block licence to each of the three Mobile Network Operators (MNOs) (Eir,[2] Three and Vodafone) for spectrum in the 24.745 – 25.277 GHz / 25.753 – 26.285 GHz frequency range for a 10-year period, expiring in August 2028.

2.8 These licences permit licensees to operate point-to-point radio links on a nationwide basis and are used by the MNOs to provide backhaul network infrastructure for their mobile communications networks. As of 30 June 2024, there were circa 4,300 fixed links deployed in this band, more than any of the other fixed link spectrum bands[3].

2.9 Paragraph 6.28 set out ComReg's work plan proposal:

"ComReg intends to consult on a new award and licensing framework for 26 GHz national block licences prior to the expiry of current licences in August 2028." (emphasis added)

[2] "Eir (previously trading as Meteor Mobile Communications Limited)"

[3] See Figure 4 of ComReg Document 23/119 for information on the number of fixed links per frequency band.

2.2.2 Summary of respondents' views

2.10 The three MNOs (Eir, Three and Vodafone) and Imagine commented on the 26 GHz band.

2.11 Eir supports the continued use of spectrum in the 26 GHz band for National Block licensing and submits that:

i. it does not envisage any material demand arising for this spectrum for MFCN/WBB use;

ii. National Block licensing makes efficient use of this spectrum and has proven beneficial for all fixed link users; and

iii. *"consideration should be given to establishing a renewal regime rather than pre-determining that licence expiry"* should be addressed through an auction.

2.12 Three submits that, *"given the now central role that 26GHz National Block Licenses play in fixed link deployment"*, ComReg activity on a *"renewal regime"* for the 26 GHz National Block licences should commence in "*the very short term*". In support of this view, Three:

i. notes that Consultation 24/65 set out very clearly the success of the 26 GHz National Block licence regime as evidenced from the volume of fixed links in that band;

ii. states that *"these deployments support the mobile service…and have become a cornerstone of mobile network design in Ireland."*; and

iii. submits that, given the volume of links deployed, "*it would be difficult for operators to quickly react to any changes to the structure of the block licence regime by migrating to different solutions.*"

2.13 Vodafone states that it *"will participate in the specific workplan activities listed and of particular interest will be the consultations around 26GHz, 1.4GHz and 3.2GHz to 3.4GHz"*.

2.14 Imagine submits that *"notwithstanding the current challenges of securing investment for the deployment wireless network … the availability of spectrum [for MFCN] in this [26 GHz] band has an important role to play meeting the objectives of the EU Gigabit Infrastructure Act Regulation ('GIA')"*.

2.2.3 ComReg's assessment and final position

(i) Potential use of 26 GHz band for MFCN/WBB services

2.15 While ComReg notes Imagine's opinion that the availability of spectrum in the 26 GHz band for MFCN/WBB services may be important in the future, neither Imagine or any other respondent submitted any evidence to suggest that this would be during the 2025-2028 period of this plan.

2.16 ComReg therefore remains of the view that the information in Section 4.3.6 of Consultation 24/65 remains valid and, in particular, that currently there is a lack of

material demand for spectrum in the 26 GHz band for MFCN/WBB services.

2.17 Notwithstanding, ComReg observes that should evidenced demand for spectrum in the 26 GHz band for MFCN/WBB services emerge during the 2025-2028 time period, ComReg's MFCN/WBB work plan activities (see Document 24/99a) are sufficiently broad to cater for such demand, for example, by:

- providing access to spectrum in the 26 GHz band for Test & Trial Ireland[4], ComReg's wireless licensing designed to encourage innovation and development of wireless communications using Ireland's radio spectrum; and/or

- considering the inclusion of spectrum in the 26 GHz band in any consultation on spectrum for MFCN/WBB uses, noting that currently there is more than 1 GHz of contiguous spectrum unassigned and potentially available for such use at the top of the 26 GHz band (see Block A in Figure 1 above).

ComReg's final position on MFCN work plan - Potential use of 26 GHz band for MFCN/WBB services

2.18 In light of the above, ComReg is of the view that its proposed work plan item in relation to 26 GHz MFCN/WBB remains appropriate, i.e.:

> *"(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for MFCN/WBB use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for MFCN/WBB use. Spectrum in the 1.4 GHz band would be considered and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge."* (emphasis added)

2.19 In addition, ComReg's work plan also includes the following action in relation to Test and Trial Ireland:

> *"promote Test and Trial Ireland and the benefits of using Ireland as a location to test or trial wireless products and services in a real world environment".*

(ii) Existing use by 26 GHz National Block Licensing and 2028 expiry

2.20 In relation to ComReg's proposal to consult on a new award and licensing framework for 26 GHz National Block licences prior to the expiry of current licences in August 2028, ComReg notes this proposal was supported by all three licensees, Eir, Three and Vodafone, with:

- Eir and Three submitting that the 26 GHz National Block licence regime is an important and efficient use of spectrum as evidenced from the extensive use of this band for fixed links; and

- Vodafone stating that the 26 GHz band is *"of particular interest"* to it.

2.21 While Eir and Three opine that addressing licence expiry though a "*renewal*

[4] www.testandtrial.ie

regime" could, in their view, be more appropriate than through an auction process, ComReg notes that such matters are not discussed in ComReg's proposal.

2.22 Instead, such considerations, including respondents' submissions made here, would be considered as part of the specific consultations on the award and licensing framework.

ComReg's final position on MFCN work plan - Existing use by 26 GHz National Block Licensing and 2028 expiry

2.23 Considering the above, ComReg is of the view that its proposed work plan item for 26 GHz National Block licensing remains appropriate, i.e.:

> *"consult on a new award and licensing framework for 26 GHz national block licences prior to the expiry of current licences in August 2028."*

2.3 Private 5G Networks (Local-area WBB)

2.3.1 Summary of Consultation 24/65

2.24 In Sections 4.2.3 and 4.3.7 of Consultation 24/65, ComReg discussed the potential use of MFCN spectrum for local-area WBB and private mobile (4G / 5G) networks noting, in particular, the suitability of spectrum in the 3.8 to 4.2 GHz band, and the potential suitability of spectrum in the lower part of the 26 GHz Band (24.250 –24.745 GHz (495 MHz) – Block C in Figure 1 above).

2.25 Paragraph 6.4, bullet (vii) set out ComReg's work plan proposal to:

> *"(vii) Consult and put in place, as appropriate in the first half of the 2025-2028 period, a licensing regime for local-area Wireless Broadband ("WBB") systems, which could be used for, among other things, private mobile (4G, 5G etc.) networks. This would be subject to demand and progress continuing at European (CEPT/EU) level to harmonise the 3.8-4.2 GHz band for local area WBB systems (low to mid-power). This might also encompass spectrum in the lower part of the 26 GHz Band (24.250 –24.745 GHz (495 MHz) – Block C)".* (emphasis added)

2.3.2 Summary of respondents' views

2.26 13 respondents commented on ComReg's proposal:

- 12 respondents[5] supported ComReg's proposal, as summarised below; and
- 1 respondent (Three) submitted that work in the 3.8 to 4.2 GHz band is, in its view, a lower priority than *"activity in respect of 3.6 GHz, MBSA1 or 26*

[5] These were: (1) Benetel Ltd., (2) Druid Software, (3) FMG Electronics (Dist) Ltd, (4) Fogarty Fenwick Ltd., (5) Galway City Innovation District, (6) Nemeton TV, (7) Galway Harbour Company DAC (trading as the Port of Galway), (8) RTE, (9) Sigma Wireless Ltd., (10) TG4, (11) Titan IoT Solutions, and (12) UMAC Systems Ltd.

GHz spectrum and that ComReg resources and effort should also be assigned to reflect this prioritisation."

The need for private 5G networks and its benefits

2.27 From the 12 respondents who supported ComReg's proposal, it was submitted that private 5G networks:

- are rapidly becoming a prerequisite to support a wide range of sectors, in particular for manufacturing, transport/logistics, and entertainment and events (i.e. outside broadcasting) as summarised below; and
- would benefit Ireland by supporting Foreign Direct Investment (FDI), supporting the significant cluster of Irish companies supplying the private cellular industry globally and allowing Ireland to keep pace with leading countries with a private 5G licensing framework.

(a) Manufacturing sector

2.28 For the manufacturing sector, respondents submitted that:

- private 5G networks would allow manufacturers to gain a competitive edge, as they are then able to access new technologies which would reduce downtime and produce better products. Examples of new technologies included Autonomous Goods Vehicles, Internet of Things (IoT), Computer Vision, Augmented Reality (AR), Artificial Intelligence (AI), and Digital Twins;
- worker productivity and safety are increasingly dependent on ubiquitous broadband communications for both handheld devices (smartphones, tablets, tag-readers etc.) and wearables (man-down / lone worker alarms, AR glasses);
- in most cases, manufacturing companies have concluded that Wi-Fi, even in its latest versions, is not capable of managing the volume and complexity of wireless data traffic being created by Industry 4.0 technologies, and manufacturing companies are, therefore, increasingly adopting 5G private networks; and
- examples of private 5G networks in the manufacturing sector include Atlas Copco[6] (the UK), Bosch[7] (Germany), Airbus[8] (France), Agnico-Eagle[9] (Finland), Ericsson[10] (USA) and Midea, AIS, China Unicom and Huawei[11] (Asia).

[6] https://tecknexus.com/5gusecase/atlas-copcos-new-uk-smart-factory-features-ericsson-5g/
[7] https://5gobservatory.eu/wp-content/uploads/2022/04/5.6.pdf
[8] https://www.airbus.com/en/newsroom/stories/2024-06-the-future-is-calling-unveiling-airbus-private-5g-network
[9] https://5gobservatory.eu/nokia-to-build-private-5g-network-in-finnish-goldmine/
[10] https://www.ericsson.com/en/about-us/company-facts/ericsson-worldwide/united-states/5g-smart-factory
[11] https://www.huawei.com/en/news/2024/5/first-5g-fully-connected-factory

(b) Transport/Logistics sector

2.29 For the transport/logistics sector, respondents submitted that:

- ensuring efficiency and catering for the growth in traffic volume at Ireland's ports and airports is of national importance. For example, 90% of Ireland's traded goods pass through Ireland's commercial port network, and freight traffic has grown almost 400% in the last two years at Rosslare Port;
- modern container ports now depend, to a great extent, on automated or semi-automated gantry cranes which enable fewer crane operators to handle more freight, autonomous vehicles to move containers between ship and road or rail haulage, AI-enabled computer visualisation for logistics and security applications, digital signage and real-time traffic routing;
- modern cranes are now able to be connected to 5G cellular networks for remote operation. These advances not only increase productivity but also improves the safety of workers;
- similar to manufacturing, ports and logistics are quickly moving from Wi-Fi to private cellular communications to access the port technology of the future;
- examples of private 5G networks in ports today include the ports of Belfast[12], Blyth[13], Southampton[14], Teeside, Thames, and Tyne[15] (the UK) Rotterdam[16] (the Netherlands), Groeninge (Belgium), Hamburg, Kiel, Bremerhaven, and Wilhemshaven[17] (Germany), and Le Harve[18] (France); and
- examples of private 5G networks in airports include Frankfurt (Germany) and Schiphol (the Netherlands).

(c) Broadcasting sector

2.30 For the broadcasting sector, respondents submitted that:

- the broadcast television industry across Europe and North America is now taking advantage of the wireless broadband capacity of 5G to replace the long cable runs between camera and control suite, with simple 5G

[12] https://www.belfast-harbour.co.uk/news/bt-and-belfast-harbour-partner-to-build-the-uk-and-ireland-s-fir-269/
[13] https://www.boldyn.com/news/port-of-blyth-becomes-tech-hub-with-private-5g-network-innovation-lab-2
[14] https://www.verizon.com/business/resources/customer-success-stories/associated-british-ports/
[15] https://www.rcrwireless.com/20231102/internet-of-things/port-of-tyne-in-uk-gets-private-5g-network-from-bt-and-ericsson
[16] https://www.portofrotterdam.com/sites/default/files/2023-06/5g-communication-port-of-rotterdam-en.pdf
[17] https://blog.privatenetworks.technology/2024/04/deutsche-telekoms-campus-network-l-for.html
[18] https://www.analysysmason.com/contentassets/f3ebeb02b0454ed191e09b55b623c8e4/analysys_mason_le_havre_port_case_study_january2022_rma17.pdf

wireless backpack solutions which send the signals from the cameras wirelessly;

- this is particularly relevant to Outside Broadcasting (OB) (e.g. cultural and sporting events) and improves speed and quality and makes providing OB facilities cheaper and simpler. For providing OB capability in a small media market, attention to cost is crucial for remaining financially viable and continuing to democratise the media by covering events across the country; and

- examples of private 5G networks in the broadcasting sector include the BBC[19] (UK), Orange Events[20] (France), Haivision[21] and Trinity Broadcasting Network[22] (USA).

Need to facilitate private 5G networks built by or for the end customer

2.31 In considering how best to deploy a private 5G network, respondents opined that a private 5G network provided using a public mobile network (i.e. provided by an MNO using spectrum licensed to it) would not best meet end customer needs because, among other things:

- the nature of 5G means that the density at which base stations need to be rolled out, especially for the indoor coverage quality crucial for manufacturing and logistics, cannot readily be provided by the existing public networks;

- MNOs for the most part do not have the expertise to design and deliver small-scale private networks;

- the involvement of MNOs leads to numerous drawbacks. MNOs have little to no understanding of the industry and often the MNOs preferred 'one-size-fits-all' approach is incompatible with the end customer's requirements, as they lack full control of their network and are unable to customise it to suit their needs. Furthermore, MNOs may charge service fees or slow down the network if it exceeds their monthly limits, which can prove devastating for the end customer; and

- currently, most public networks are 5G non-standalone meaning technological innovation over 5G, such as network slicing, ultra-low latency, etc, are not available over public 5G networks.

2.32 Respondents submitted that a private 5G network, built by or for the end customer using dedicated spectrum, is the preferred way to deliver private 5G networks. These networks are more secure and efficient, and end customers do not need to sacrifice control for convenience and ease of use. In addition:

[19] https://www.bbc.co.uk/rd/blog/2023-05-5g-non-public-network-coronation
[20] https://www.fierce-network.com/wireless/france-television-uses-private-5g-network-olympic-torch-relay
[21] https://www.haivision.com/blog/broadcast-video/private-5g-networks-broadcast-production/
[22] https://trilogynextgen.com/how-private-5g-networking-reinvents-the-broadcast-studio/

- one respondent (Benetel) noted that *"Markets where MNOs have a 'gate-keeper' role in enabling private networks tend to have fewer private networks which are associated with higher costs.";* and

- another respondent (Druid Software) noted that *"MNOs can certainly play a role in the delivery of Private 5G networks but the markets where they do this most efficiently and effectively are those where they are competing with system integrators and vendors to deploy the best solution at the best price for the licensee."*

Accelerate timing to keep pace with leading countries

2.33 Respondents contend that ComReg should immediately move forward in order that enterprises/end customers can benefit from the efficiencies of 5G private networks, and that Ireland keeps pace with leading countries which already have a private 5G licensing framework.

2.34 One respondent (Sigma Wireless) opined that ComReg's consultation and decision could be carried out in parallel with CEPT and the EC's timetable, making spectrum in the 3.8 to 4.2 GHz band available by the end of 2025.

2.35 Another respondent (Druid Software) contends that, aside from the countries noted by ComReg in Consultation 24/65 (these were Belgium, Denmark, Finland (proposed), France, Poland, UK and Norway all with a licensing framework for spectrum in the 3.8-4.2 GHz band):

- Germany (3.7-3.8 GHz), Netherlands, Switzerland and Sweden (3.7-3.8 GHz, 26 GHz) also have licensing framework for private 5G networks; and

- in Italy, Spain, Austria and the Czech Republic, the deployment of enterprise private networks using MNOs is also underway. For these countries, the number of licences issued and the numbers of networks deployed are significantly behind those listed above, indicating that a framework that allows enterprises to deploy networks themselves is best suited to meeting their requirements.

Potential licensing framework details

2.36 Respondents assert that a licensing framework for private 5G networks should be simple to navigate and low-cost (e.g. Germany) where:

- Spectrum/licences should be issued direct to the end-customer (businesses or premises owners) and not via an MNO;

- 'Pop-up' licences should be available for a distinct area and for a short period of time to cover a particular event; and,

- Longer-term licences should be available to enable the use of 5G at specific sites e.g. company warehouses, factories, etc. These licences should be for at least 10 years, as otherwise companies cannot soundly make investment decisions.

2.37 In relation to spectrum bands, a number of respondents (Benetel, Druid Software, Sigma Wireless) supported making spectrum available in the 3.8 – 4.2 GHz band

(at least 100 MHz), with one respondent (Sigma Wireless) opining that spectrum in the 26 GHz band is a lower priority in its view and could therefore be considered in a separate consultation.

2.38 One respondent (Druid Software) also maintains that neutral-host networks (i.e. the ability of a licensee to use its spectrum rights to improve cellular coverage inside a building or venue) should also be allowed under the licence terms in its view, as it believes it enhances the business value of the network for venue owners (hotels, sports venues, etc) and allows them to offset part of the cost of the network.

2.3.3 Other Information – 3.8-4.2 GHz

2.39 On 8 November 2024, the CEPT ECC approved:

- The CEPT Report 088[23] on the shared use of 3800-4200 MHz by terrestrial wireless broadband systems providing local-area network connectivity. In this report, the compatibility with and protection of incumbent services and their future deployments within the band and in adjacent bands is considered, as well as the proposed harmonised least restrictive technical conditions; and

- ECC Decision ECC/DEC/(24)01[24] on the harmonised technical conditions for the shared use of the 3.8-4.2 GHz frequency band by low/medium power terrestrial wireless broadband systems (WBB LMP) providing local-area network connectivity.

2.40 ComReg also observes that in the coming year further harmonisation work is planned within CEPT to consider certain compatibility and co-existence issues[25] and the EC Radio Spectrum Committee (RSC) is also to consider whether it could be appropriate to consider an EC harmonisation decision[26].

2.3.4 ComReg's assessment and final position

There is strong support for ComReg's proposal

2.41 ComReg notes the strong support from respondents for its proposal to consult, and put in place as appropriate, a licensing framework for local-area WBB which

[23] https://docdb.cept.org/document/28629
[24] https://docdb.cept.org/document/28628
[25] For example:
- geographical/frequency separation;
- defining a maximum allowed power level (pfd) at the border of the WBB LMP licensed area;
- defining the maximum unwanted emissions below 3.8 GHz depending on location of WBB LMP in relation to MFCN;
- WBB LMP network being synchronised with MFCN, or specific sub-cases of semi-synchronised operation, which only allows DL to UL modifications to the WBB LMP network compared to the frame structure of the MFCN.

[26] Noting that the EC RSC on 16 December 2021 gave a mandate to CEPT on technical conditions regarding the shared use of the 3.8-4.2 GHz frequency band for terrestrial wireless broadband systems providing local-area network connectivity in the Union.
Mandate_3_84_2GHz_5tdWtypEqdiGwgjS2YTken1pMgs_82230.pdf

can be used for private (4G, 5G) networks.

2.42 Firstly, ComReg observes that respondents submitted information to substantiate their view that private 5G networks are rapidly becoming a prerequisite to support a wide range of sectors, in particular, for manufacturing, transport/logistics, and entertainment and events (i.e. outside broadcasting). Among other things, these respondents:

- described the perceived benefits of private 5G networks in these sectors, noting that:
  - for the manufacturing and transport/logistics sectors, private 5G networks enable the use of new technologies[27], the claimed benefits include increased productivity, reduced downtime, better product quality and better worker safety; and
  - for the broadcasting sector across Europe and North America, the long cable runs between camera and control suite are being replaced with simple 5G wireless backpack solutions which send signals wirelessly from the cameras. This is particularly relevant to OB, improves speed and quality and makes the provision of OB cheaper and simpler. For a small media market such as Ireland this is important as attention to cost is crucial for financial viability;
- provided many examples of private 5G networks in these sectors, such as:
  - Atlas Copco[28] (the UK), Bosch[29] (Germany), Airbus[30] (France) in relation to the manufacturing sector;
  - the ports of Belfast[31] and Tyne[32] (the UK), Rotterdam[33] (the Netherlands) and the airports of Frankfurt (Germany) and Schiphol (the Netherlands) in relation to the transport/logistics sector; and
  - the BBC[34] (the UK) and Orange Events[35] (France) in relation to OB use; and
- maintained that private 5G networks could also benefit Ireland generally, in terms of supporting Foreign Direct Investment (FDI), supporting the significant cluster of Irish companies supplying the private cellular industry

[27] These include Autonomous Goods Vehicles, Internet of Things (IoT), Augmented Reality (AR), Artificial Intelligence (AI), Computer Vision, Digital Twins, Automated or Semi-Automated Gantry Cranes, Digital Signage and real-time traffic routing.
[28] https://tecknexus.com/5gusecase/atlas-copcos-new-uk-smart-factory-features-ericsson-5g/
[29] https://5gobservatory.eu/wp-content/uploads/2022/04/5.6.pdf
[30] https://www.airbus.com/en/newsroom/stories/2024-06-the-future-is-calling-unveiling-airbus-private-5g-network
[31] https://www.belfast-harbour.co.uk/news/bt-and-belfast-harbour-partner-to-build-the-uk-and-ireland-s-fir-269/
[32] https://www.rcrwireless.com/20231102/internet-of-things/port-of-tyne-in-uk-gets-private-5g-network-from-bt-and-ericsson
[33] https://www.portofrotterdam.com/sites/default/files/2023-06/5g-communication-port-of-rotterdam-en.pdf
[34] https://www.bbc.co.uk/rd/blog/2023-05-5g-non-public-network-coronation
[35] https://www.fierce-network.com/wireless/france-television-uses-private-5g-network-olympic-torch-relay

globally, and allowing Ireland to keep pace with leading countries with a private 5G licensing framework.

2.43 Secondly, ComReg notes that a number of respondents had considered whether private 5G networks could be provided using existing frameworks of licence-exempt spectrum (e.g. Wi-Fi) or spectrum licensed to the MNOs (i.e. using public mobile networks), but were generally of the view that these frameworks would not best meet end consumer needs.

2.44 In relation to licence-exempt spectrum, ComReg observes that the respondents contend that Wi-Fi, even in its latest versions, was not capable of managing the volume and complexity of wireless data traffic being created by Industry 4.0 and, for that reason, the manufacturing, transport and logistics sectors are moving to private 5G networks. ComReg further observes that, by its nature, licence-exempt spectrum may not provide sufficient levels of security when compared to licensed spectrum.

2.45 Regarding whether public mobile networks could provide private 5G networks, ComReg observes that the respondents submit that a private 5G network built by or for the end customer using dedicated spectrum is their preferred way to deliver a private 5G network. Respondents contend that the involvement of MNOs has drawbacks due to:

- Ostensibly at least, not having the expertise to design and deliver small-scale private networks;
- the use of 'one-size-fits-all' approaches by MNOs which may prove incompatible with end-customer's needs; and
- the potential for additional service charges.

2.46 Nevertheless, ComReg observes that the MNOs can, and do, provide private 5G networks as evidenced by the examples provided by respondents, and that this may increase in the future as the 5G standalone technology is provided on the public mobile networks[36] facilitating technological innovation such as network slicing, ultra-low latency, etc. become available.

2.47 In this regard, ComReg notes Druid Software's comment that "*MNOs can certainly play a role in the delivery of Private 5G networks but the markets where they do this most efficiently and effectively are those where they are competing with system integrators and vendors to deploy the best solution at the best price for the licensee.*"

There is no need at this time to consider the priority of the 3.8 - 4.2 GHz band project against projects to address MFCN/WBB licence expiry (3.6 GHz, MBSA1 or 26 GHz National Block Licences)

2.48 While ComReg observes Three's comment that work to facilitate private 5G networks in the 3.8 - 4.2 GHz band is a lower priority than work in respect of

[36] In Ireland, ComReg understands that currently Three is the only MNO with stand-alone 5G on its public network. https://www.three.ie/business/insights/blog/three-business-blog-team/three-business-5g-standalone-launch.html

expiring MFCN/WBB licences (3.6 GHz, MBSA1 or 26 GHz National Block Licences), the matter of relative priorities is essentially inapt given the staggered consultation timeframes envisaged.

2.49 A consultation on a licensing framework for local-area WBB systems using spectrum in the 3.8 - 4.2 GHz band project is currently envisaged for Q2 2025, while consultation(s) on the projects to address (i) expiring 26 GHz National Block Licences and (ii) expiring MBSA1 and potentially 3.6 GHz licences would be commenced at later dates sufficiently in advance of their respective licence expiry

Timing of ComReg's consultation and decision

2.50 ComReg notes the respondents' views that Ireland should immediately move forward with its consultation and decision, with one respondent (Sigma Wireless) contending that, in its view, this could be carried out in parallel with CEPT and the EC's timetable, thereby making spectrum in the 3.8 to 4.2 GHz band available by the end of 2025.

2.51 Since publishing ComReg Document 24/65 in August 2024, ComReg observes that harmonisation of the 3.8 to 4.2 GHz band has continued. CEPT has now approved ECC/DEC/(24)01 on the harmonised technical conditions for the shared use of the 3.8-4.2 GHz frequency band by low/medium power terrestrial wireless broadband systems providing local-area network connectivity, and discussions on an EC harmonisation decision are expected to take place within the EC RSC.

2.52 Noting among other things, that there now is a CEPT harmonisation decision on this band and that there is strong support for a licensing framework, ComReg is of the view that commencing this consultation process during 2025 is appropriate, and this consultation is planned for Q2 2025 as detailed in ComReg's Action Plan[37].

2.53 Interested parties will be aware that the subsequent scheduling of any ComReg decision on a licensing framework along with its subsequent licensing, will be dependent on matters raised in the consultation, noting also that some further harmonisation work is also ongoing with CEPT and the EC.

Licensing framework detailed proposals

2.54 Regarding respondents' views on any licensing framework, ComReg notes that such detail is beyond the remit of this consultation but any submissions made here will be considered at a later stage.

ComReg's final position on MFCN work plan

2.55 ComReg final position remains as that proposed, noting also that the consultation would commence in 2025.

[37] https://www.comreg.ie/media/2024/06/Annual-Action-Plan-Ye-30-06-2025.pdf

"(vii) Consult in 2025 and put in place, as appropriate in the first half of the 2025-2028 period, a licensing regime for local-area Wireless Broadband ("WBB") systems, which could be used for, among other things, private mobile (4G, 5G etc.) networks. This would be subject to demand and progress continuing at European (CEPT/EU) level to harmonise the 3.8-4.2 GHz band for local area WBB systems (low to mid-power). This might also encompass spectrum in the lower part of the 26 GHz Band (24.250 –24.745 GHz (495 MHz) – Block C);

2.4 3.6 GHz Band: Spectrum rights returned by Dense Air Ireland

2.4.1 Summary of Consultation 24/65

2.56 In Section 4.2.2 of Consultation 24/65, ComReg noted that Dense Air Ireland (DAI) had surrendered its 3.6 GHz Band Liberalised Use Licence with effect from 31 July 2024. The spectrum rights returned by DAI are outlined in blue in Figure 2 below and are:

- 25 MHz nationwide (i.e. for all 9 regions) in the 3410–3435 MHz part of the 3.6 GHz band; and
- 35 MHz in the 5 urban regions of Dublin, Cork, Limerick, Galway and Waterford, in the 3580–3615 MHz part of the 3.6 GHz band.

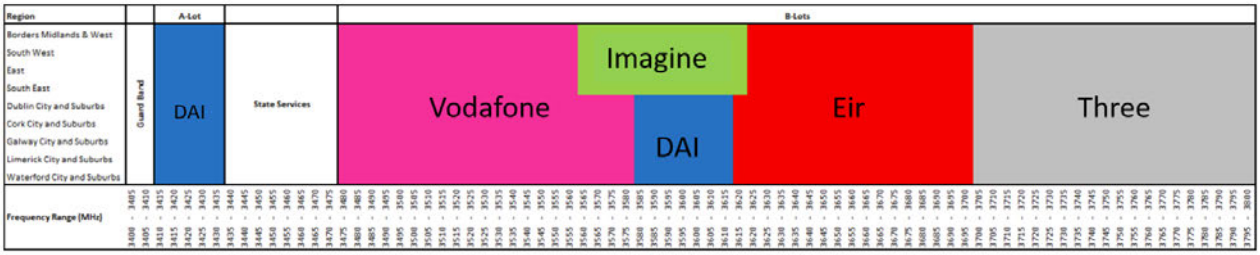


Figure 2: Spectrum in the 3.6 GHz band

2.57 In relation to the returned spectrum rights, ComReg at paragraph 4.27 of its consultation stated:

- *"at this time there is likely to be little demand for these rights as prior to handing back the 3.6 GHz band licence to ComReg, Dense Air would inevitably have exhausted its other options to sell or transfer the spectrum rights to other parties"; (emphasis added)* and
- *"as ComReg completes its proposed 2025-2028 MFCN workplan, and notably its proposal to consult on the expiry of MBSA1 licences (as discussed below), it is likely that spectrum in the 3.6 GHz band may need to be considered in the round."*

2.4.2 Summary of respondents' views

2.58 Three respondents (Eir, Imagine and Three) commented on the 3.6 GHz band spectrum rights returned by DAI.

2.59 Eir submits that ComReg's characterisation of the situation in paragraph 4.28 of Consultation 24/65 is not correct.

2.60 Eir stated that it [✂ [redacted] ✂]

2.61 Imagine does not necessarily agree that the fact that DAI's spectrum rights was not sold or transferred indicates a lack of demand, but rather that it may not have been possible to agree terms. While noting that the returned spectrum rights would inevitably be dealt with in any consultation relating to MBSA1 or the 3.6 GHz band, Imagine, queried what ComReg proposed to do with the returned spectrum rights in the interim – *"for example would this spectrum be available for short term leasing?"*

2.62 Three submits that the returned spectrum rights should be made available for assignment in unison with all other spectrum in the band on expiry of current licences, as this would allow maximum flexibility for licensees at the time of re-award, including the possibility to obtain uniform national licences. Consequently, Three contends that it would thus be necessary to rule-out licensing of the returned spectrum for any period beyond the expiry date of current 3.6 GHz licences (i.e. 31 July 2032).

2.4.3 ComReg's assessment and final position

2.63 Respondents have suggested that DAI may not have fully exhausted its options before returning its 3.6 GHz band spectrum rights to ComReg, and that there may well be demand for some or all of these returned spectrum rights.

2.64 ComReg also observes that there is circa 7 years to the expiry of the current 3.6 GHz licences on 31 July 2032, and that it would be important to explore how best to ensure the efficient use of this harmonised spectrum in the meantime.

ComReg's final position on the MFCN work plan

2.65 Noting that:

- there may be demand for some of all of these spectrum rights;
- the returned 3.6 GHz band spectrum rights are currently available, with c. 7 years before current licences in the 3.6 GHz band expire;

- the 3.6 GHz band is an EC harmonised spectrum band[38] and is identified as a 5G pioneer band by the RSPG[39];
- the 3.6 GHz has good equipment availability[40];
- the 3.6 GHz band is currently being used by the existing MNOs to provide 5G services and rollout is continuing;
- the 3.6 GHz band is currently being used by Imagine to provide FWA services; and
- cognisant of the need to ensure the efficient use of spectrum and the promotion of competition to the benefit of users,

ComReg will supplement its work plan by undertaking a consultation in 2025 on the potential assignment of any returned spectrum rights in the 3.6 GHz band.

2.5 MBSA1 licence expiry

2.5.1 Summary of Consultation 24/65

2.66 In Section 4.2.2 of Consultation 24/65, ComReg noted that spectrum rights in the 800 MHz, 900 MHz and 1800 MHz bands in the MBSA1 licences expire on 12 July 2030 and outlined its intention to commence *"its consultation process on the expiry of these [MBSA1] licences during the 2025-2028 work plan period".*

2.67 In relation to the potential timing of same, ComReg noted at paragraph 4.3.1 that:

> *"Consulting on this matter during 2026, would afford circa 3½ to 4½ years in advance of licence expiry on 12 July 2030, and would be a similar timeframe to that required for the MBSA1 and MBSA2 awards both of which were more complex*".

2.68 In relation to the proposed MFCN work plan, ComReg proposed (at paragraph 6.4, bullet (viii)) that it would:

> *(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for WBB/Mobile Fixed Communication Network ("MFCN") use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for WBB/MFCN use. Spectrum in the 1.4 GHz band would be considered, and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge." (emphasis added)*

[38] European Commission Implementing Decision 2008/411/EC as amended by Decision (EU) 2019/235 and Decision 2014/276/EU

[39] "RSPG Opinion on spectrum related aspects for next-generation wireless systems (5G)" Document RSPG16-032 FINAL (09 November 2016)

[40] See for example "5G Devices Ecosystem September 2024", https://gsacom.com/paper/5g-devices-ecosystem-september-2024/

2.5.2 Summary of respondents' views

2.69 The three MNOs (Eir, Three and Vodafone), being the existing licensees, commented on the expiry of the MBSA1 licences.

2.70 Eir states that it *"does not agree that designing another auction process to address the expiry of MBSA1 licences would be appropriate or consistent with the evolution of the European regulatory framework as set out in the Code"*[41] (emphasis added) and in this regard it submits that:

- ComReg's phrasing of paragraph 4.31 of Consultation 24/65 (see Section 2.5.1 above) suggests that "*ComReg has already pre-determined that licence expiry should be addressed by way of a spectrum auction award process as it has done on previous occasions*" (emphasis added); and

- *"the outcomes of the last spectrum auctions have resulted in the efficient use of spectrum in 3.6 GHz. Dense Air has exited the market and the spectrum has been denied to efficient users"*, and *"there is also evidence that Imagine is reducing its network and hence its use of 3.6 GHz and 2.3 GHz is not efficient"*.

2.71 Eir further contends that MNOs need "*predictable and cost-effective access to spectrum*" to support network expansion and that *"ComReg's work plan must explicitly acknowledge that a review to consider renewal rights for mobile spectrum licences will be undertaken*". (emphasis added) In support of this, Eir:

- opines that "*The need for predictable and cost-effective access to spectrum is acknowledged in the Code which encourages longer duration licences and renewal / extension rights in order to support the fundamental objective of promoting investment in Very High Capacity Networks*" (emphasis added); and

- references Regulation 32(2) of the Code.

  32(2) "The Regulator shall assess the need for a renewal at its own initiative or upon request by the holder of the right, in the latter case not earlier than five years prior to expiry of the duration of the rights concerned. This shall be without prejudice to renewal clauses applicable to existing rights."

2.72 Three submits that *"early certainty regarding the roadmap for the MBSA1 spectrum is required"* (emphasis added) to allow operators plan network[42] and service evolution and to plan and phase the significant capital investment required to support growth in mobile data traffic. Three submits that:

[41] The Code refers to EU Directive 2018/1972 establishing the European Electronic Communications Code as transposed to Irish law by S.I. No. 444 of 2022 European Union (Electronic Communications Code) Regulations 2022.

[42] Three states that "*Early knowledge of the roadmap for this spectrum beyond the current licence expiry in 2030 would allow effective transition of services, if required, and the seamless integration of network planning, procurement, and expenditure in the MBSA2 spectrum into new planning that would be required for the MBSA1 spectrum under any new licence arrangements."*

- as a first step it contends that "*ComReg should consult on whether the current MBSA1 licenses should be extended to co-terminate with the current 3.6GHz licenses*"[43] (emphasis added); and

- "*work in the MBSA1 spectrum must be sequenced to allow an initial consultation in early 2025*" (emphasis added).

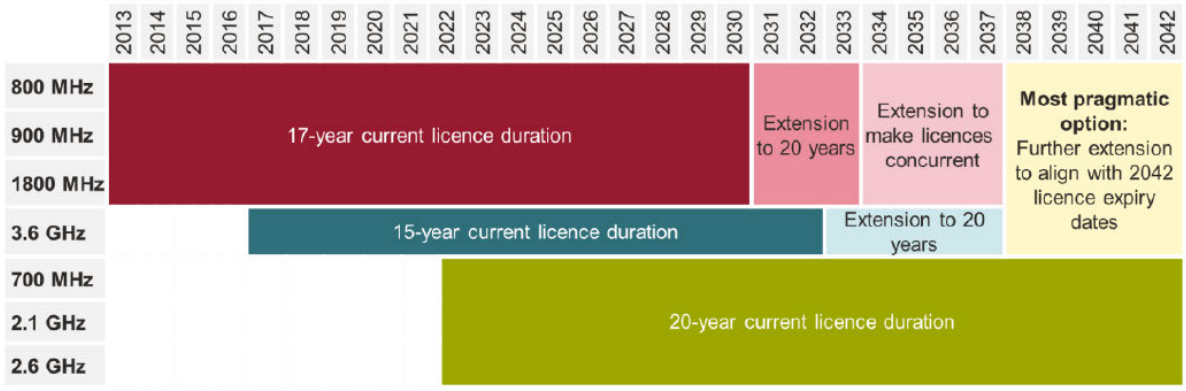
2.73 Vodafone expounds that *"we must now to engage in a broader spectrum policy review" (*see also Section 2.7.1 below) and that *"it is recognised now across the EU that planning and investment certainty is needed on spectrum and the traditional model of auctions no longer work".* (emphasis added)

2.74 In supporting its view, Vodafone commissioned a short report from Frontier Economics titled 'Managing Spectrum to Benefit Ireland' (the 'Frontier Report') which sets out *"alternative options and mechanisms available for future assignment of spectrum in Ireland using the models adopted in other Member States as templates."*

2.75 Vodafone contends that its Frontier Report "*illustrates options for pro-investment approaches in Ireland*" as shown in Figure 3 and extrapolates that:

- "*At a minimum regardless, Ireland needs to extend its licences to align to the EU 20 year minimum*"; and

- "*it is also clear that further pro-investment options are also needed*"



Source: *Frontier Economics analysis of data from Vodafone and Telegeography*

Figure 3: Illustrative options for pro-investment approaches in Ireland (Source: Figure 2 of the Frontier Report)

The Vodafone Frontier Report

2.76 Vodafone contends that the reason for it commissioning its report is that *"[i]n the past, ComReg has used auctions to re-assign legacy spectrum. However, there are alternative approaches available, which may be better suited to support the objectives of the Digital Decade. Vodafone has commissioned Frontier Economics to assess these alternatives in the context of the Digital Decade objectives and the*

[43] Three states that "*This is because there might be substitutability or complementarity reasons for making the 3.6GHz band available for re-licensing at the same time as the 800MHz, 900MHz, and 1800MHz bands which would result in overall more effective use of spectrum it the medium to long term."*

specific challenges faced by Ireland's mobile sector." (emphasis added)

2.77 Vodafone's Frontier Report considers[44] a number of approaches (competitive allocations (i.e. auctions), perpetual licences, administrative/automatic renewals, licence extensions and making licence expiry dates concurrent) and opines that in its view:

- *"perpetual licences and administrative/automatic renewals are more likely to promote investment and to contribute to achieving the Digital Decade objectives than re-auctioning legacy spectrum",*
- an *"illustration of a pro-investment licence extension policy in Ireland"* is presented in Figure 3 above, where Frontier contends that:
  - there is a clear benefit in its view to extending existing licences for 800 MHz, 900 MHz and 1800 MHz spectrum to align expiry dates with those with latest expiry date (i.e. to 2042 with the 700 MHz, 2.1 GHz and 2.6 GHz licences), as this would boost investor certainty, drive forward 5G connectivity and ultimately help Ireland achieve its Digital Decade objectives; and
  - failing this, investor certainty could be protected to some extent it contends by ensuring that all licences have a duration of at least 20 years, and by making the 800 MHz, 900 MHz and 1800 MHz licences concurrent with it proposed extension to the duration of 3.6 GHz licences; and
- *"perpetual licences and administrative/ automatic renewals may result in more timely and less costly spectrum management and have environmental benefits".*

2.78 In relation to competitive allocations (i.e. auctions), the Frontier Report contends that auctions are typically taken to allocate new spectrum where this is excess demand, although some NRAs (including ComReg) have also used auctions to re-allocate spectrum after initial spectrum licences have expired. In addition, it contends that re-auctioning spectrum may delay investment by reducing investor certainty and can cause inefficiency by creating artificial scarcity.

2.79 Regarding perpetual licences, the Frontier Report notes that perpetual licences are used in some jurisdictions (e.g. UK and US) and provide operators with a high degree of certainty that they can invest in equipment, without material risk that the spectrum will be re-allocated at any time in the future. The Frontier Report also contends that spectrum trading can then allow efficient re-distribution of spectrum if the initial holder is no longer the operator with highest value[45].

2.80 For administrative/automatic renewals the Frontier Report claims that this is widely used to renew spectrum and can allow policymakers to pursue specific policy objectives when the licence conditions in a renewed licence are modified to reflect NRA/Government evolving objectives. In addition, the Frontier Report contends that administrative/automatic renewals *"ensure certainty and therefore promote*

[44] Details of Frontiers considerations are set out in its report,

[45] Spectrum trading is also provided for in Ireland, subject to procedures. See Spectrum Transfer and Lease Framework Procedures | Commission for Communications Regulation

efficient investment, in line with ComReg's objectives[46]", as "*the fact that spectrum licences expire would have no negative impact on MNOs' investment cycles*".

2.81 Regarding licence extensions the Frontier Report notes that some NRAs have chosen to extend licences and Frontier contend that this is advisable as it would reduce the frequency of investment uncertainty around the renewal of licences. In addition, the Frontier Report submits that Article 49 of the EU Electronic Communications Code (EECC) Directive recommends that spectrum licences should have a minimum duration of 20 years, and several licences in Ireland are set to expire before then.

2.82 Finally in relation to making licence expiry dates concurrent, the Frontier Report contends that this can enable more efficient allocations of spectrum and auctions to re-assign spectrum would be less likely to suffer from artificial scarcity.

2.5.3 ComReg's assessment and final position

Appropriate approach

2.83 As a general matter, ComReg observes that detailed consideration of respondents' submissions is outside the scope of the present consultation and is more appropriate to the specific consultation process that will address the expiry of MBSA1 licences.

2.84 Nevertheless, ComReg makes the following high-level, preliminary observations.

2.85 First, ComReg rejects Eir's assertion that it has *"already pre-determined that licence expiry should be addressed by way of a spectrum auction award process"*. In particular:

- while paragraph 4.31 of Consultation 24/65 notes, as a matter of fact, ComReg's prior award processes for MBSA1 and MBSA2, this does not state or imply that ComReg intends to run a spectrum auction process to address the expiry of MBSA1 licences. Rather, this past experience informs preparations so that appropriate provision is made for the consultation process that ComReg will undertake and to accommodate consideration of all possible approaches prior to any decision being made. This is sensible planning and to not make such provision would be plainly wrong;

- ComReg's MFCN proposal in paragraph 6.4, bullet (viii) of Consultation 24/65 does not reference an award or auction process. As noted above, considerations on the most appropriate approach to address the expiry of

[46] Frontier submit that "*investor certainty and promotion of competition"* are "*at the heart of ComReg's objectives*" for spectrum management.
Under the 2002 and Common Regulatory Framework, Frontier submit that "*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;*
- *safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition; and*
- *promoting efficient investment and innovation in new and enhanced infrastructures […]"*

MBSA1 licences will be informed by ComReg's consultation process and other relevant factors; and

- it is ComReg's practice to consider each award on its merits and not favour any specific approach for awarding spectrum rights[47].

2.86 Second, in relation to respondents' view that the provisions of the Code should be considered to extend the duration of the MBSA1 licences to a minimum duration of 20 years and Eir's view that Regulation 32(2) of the Code supports the need to consider renewal rights, ComReg observes, among other things, that:

- ComReg's decision on the MBSA1 award (as set out in ComReg Document 12/25[48]), including the duration of MBSA1 licences, was made in 2012, and in accordance with the regulatory framework applicable at that time[49]. This clearly and considerably predates the adoption of EU Directive 2018/1972 (in 2018) and the transposition of that directive into Irish law in 2022 (with S.I. 444 of 2022); and

- the MBSA1 decision[50], the licensing regulations[51] and the MBSA1 licences[52] issued, all provide that the MBSA1 licences expire on 12 July 2030. That is, the possibility of renewal was explicitly excluded.

2.87 Third, ComReg observes that some of the arguments submitted by the respondents in support of the extension or renewal of licences, or the use of perpetual licences, are similar to arguments previously considered by ComReg[53].

2.88 Fourth, ComReg observes that a range of spectrum assignment mechanisms are generally deployed across Europe, including the use of auctions to re-assign

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[47] See Section 7.1 of ComReg 16/50

[48] Document 12/25, "Multi-band Spectrum Release, Release of the 800 MHz, 900 MHz and 1800 MHz Radio Spectrum Bands", Response to Consultation and Decision, published 16 March 2012

[49] Document 12/25a, ""Multi-band Spectrum Release, Release of the 800 MHz, 900 MHz and 1800 MHz Radio Spectrum Bands", Annexes to ComReg Document 12/25, published 16 March 2012

[50] Paragraph 3.4.3 of Ch 8 in ComReg Document 12/25 states that:
"all rights of use of spectrum granted shall expire absolutely on 12 July 2030." (emphasis added)

[51] Regulation 5(2)(b) of S.I 251 of 2012 states:
"(b) A Liberalised Use Licence to which these Regulations apply, unless it has been withdrawn or had its duration amended under Regulation 7(2) and in accordance with the Authorisation Regulations, shall in any event expire:
(i) in the case of Time Slice 1 on 12 July 2015 or such other date as may be specified by the Commission; and
(ii) in the case of Time Slice 2 on 12 July 2030." (emphasis added)

[52] See Licence MLU1004 (eir), MLU1001 (Three) MLU1003 (Three) and MLU1002 (Vodafone) where the following is stated on the first page
"This licence … subject to revocation, suspension or withdrawal, expires on 12/07/2030." (emphasis added).

[53] See for example:
- ComReg's spectrum management strategy for 2011 to 2013 (i.e. circa MBSA1 award). See Chapter 4 of ComReg 11/28, Section 3.4.2 of ComReg 11/88, Section 4.3 of ComReg 11/89; and
- ComReg's spectrum management strategy for 2016 to 2018. See Section 7.3 of ComReg 15/131, Section 4.3 of ComReg 16/49, Section 7.3 of ComReg 16/50).

spectrum[54].

Indicative timing – consultation on expiry of MBSA1 licences

2.89 In relation to the views of respondents suggesting an earlier consultation to address the expiry of MBSA1 licences, ComReg is of the view that this is not appropriate, and in that regard, observes that:

- consulting on this matter during 2026, as per ComReg's MFCN proposal to *"consult, towards the middle of the 2025-2028 period"*, would afford a consultation period of 3½ to 4½ years in advance of licence expiry on 12 July 2030. As noted in paragraph 4.31 of Consultation 24/65, this would *"be a similar timeframe to that required for the MBSA1 and MBSA2 awards both of which were more complex".*

ComReg's final position on MFCN work plan

2.90 Noting the above, ComReg is of the view that its MFCN work plan to address the expiry of MBSA1 licences remains appropriate, being to:

> *(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for WBB/Mobile Fixed Communication Network ("MFCN") use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for WBB/MFCN use. Spectrum in the 1.4 GHz band would be considered, and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge." (emphasis added)*

2.6 3.6 GHz Band licence expiry (2032)

2.6.1 Summary of Consultation 24/65

2.91 In Section 4.2.2 of Consultation 24/65, ComReg noted that 3.6 GHz band liberalised use licences expire on 31 July 2032 and stated that *"as it completes its proposed 2025-2028 MFCN workplan, and in particular its proposal to commence its consultation process on the expiry of MBSA1 licences, the expiry of the 3.6 GHz Band licences may logically need to be considered in the round."*

2.92 ComReg also observed that it *"could be suitable to exclude the 3.6 GHz band from the MBSA1 process and consider its expiry in a separate process, similar to how the 3.6 GHz band award was managed previously"* and noted at paragraph 4.35 of Consultation 24/65 that "*running a single band award is generally less complex and quicker to run than a multi-band award*".

2.93 In relation to the proposed MFCN work plan, ComReg (at paragraph 6.4, bullet (viii)) proposed that it would:

> *(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for WBB/Mobile Fixed Communication Network ("MFCN") use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for*

[54] See "Licence extension and renewal policy" (version 11 Oct 2024) from Cullen International available at https://www.cullen-international.com/client/site/documents/CTSPEU20240014 (subscription required)

WBB/MFCN use. Spectrum in the 1.4 GHz band would be considered, and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge." (emphasis added)

2.6.2 Summary of respondents' views

2.94 All four existing licensees provided comment on the expiry of the 3.6 GHz band liberalised use licences (Imagine, Eir, Three and Vodafone).

2.95 Eir contends that, in its view, the same considerations apply as to MBSA1 licences meaning that *"the merits of implementing a renewal regime must be fully considered and there should be no pre-determination that expiring licences should be addressed by way of a spectrum auction award process".* (emphasis added)

2.96 Imagine contends that the 3.6 GHz band should be excluded from the MBSA1 process and managed in a separate process as was the case previously.

2.97 Three, in the context of MBSA1 licence expiry, opines that "*ComReg should consult on whether the current MBSA1 licenses should be extended to co-terminate with the current 3.6GHz licences*", as *"there might be substitutability or complementarity reasons for making the 3.6GHz band available for re-licensing at the same time as the 800MHz, 900MHz, and 1800MHz bands which would result in overall more effective use of spectrum it the medium to long term".* (emphasis added)

2.98 Vodafone, in the context of MBSA1 licence expiry, rehearses that its Frontier Report "*illustrates options for pro-investment approaches in Ireland*" and on foot of same argues that Ireland needs to extend the MFCN licences, including 3.6 GHz band licences, to 20 years and that there are also further pro-investment options.

2.6.3 ComReg's assessment and final position

2.99 Again, and as a general matter, ComReg observes that detailed consideration of respondents' submissions is outside the scope of the present consultation and is more appropriate to the specific consultation process(es) that will address the expiry of 3.6 GHz and MBSA1 licences.

2.100 Nevertheless, ComReg makes the following high-level preliminary observations.

2.101 First, and for the reasons already outlined, ComReg again refutes Eir's suggestion that ComReg has a pre-determined view that licence expiry would be addressed via a spectrum auction process. This is plainly incorrect.

2.102 Second, in relation to the respondents' views that the provisions of the Code should be considered to either extend the duration or renew 3.6 GHz band liberalised use licences, ComReg observes that:

- ComReg's decision on the 3.6 GHz band award (as set out in ComReg Document 16/57[55]), including the duration of 3.6 GHz band licences, was made in 2016 and in accordance with the regulatory framework applicable

[55] ComReg Document 16/57, *"Response to Consultation and Decision on Proposed 3.6 GHz Band Spectrum Award"*, published 11 July 2016.

at that time[56]. This clearly and considerably predates the adoption of EU Directive 2018/1972 (in 2018) and the transposition of that directive into Irish law in 2022 with S.I. 444 of 2022; and

- the 3.6 GHz band decision[57], the licensing regulations[58] and the 3.6 GHz band liberalised use licences[59] issued, all provide that the 3.6 GHz band liberalised use licences expire on 31 July 2032. That is, the possibility of renewal was explicitly excluded.

ComReg's final position on MFCN work plan

2.103 In light of the above, ComReg is of the view that its MFCN work plan to address the expiry of MBSA1 licences remains appropriate, being that:

> *(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for WBB/Mobile Fixed Communication Network ("MFCN") use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for WBB/MFCN use. Spectrum in the 1.4 GHz band would be considered, and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge." (emphasis added)*

2.7 Other Items

2.7.1 The Draghi Report and the EC White Paper

Summary of respondents' views

2.104 In their responses, both Three and Vodafone note the Mario Draghi report on EU Competitiveness, on behalf of the European Commission[60] ("Draghi Report"), which contains a number of proposals for the telecom sector, including spectrum-related proposals such as:

> *"At least double the duration of frequency licences, with the possibility of reselling during their lifespan to encourage investment propensity, incentivise capital allocation to new technologies and mitigate the financial risks of early investment". (emphasis added)*

2.105 While conceding that the Draghi Report is "*not a formal Commission position*",

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[56] See Annex 2 of ComReg Document 16/57

[57] Paragraph 3.11.3 of Ch 8 in ComReg Document 16/57 states that
> *"3.6 GHz Band Liberalised Use Licences in respect of the Award Spectrum being granted for a maximum term of 15 years and where all rights of use of spectrum granted shall expire absolutely on 31 July 2032."* (emphasis added)

[58] Regulation 5(1) of S.I 532 of 2016 states:
> *"5 (1) The commencement date of a 3.6 GHz Band Liberalised Use Licence shall be 1 August 2017 or such other date as may be specified by the Commission. Unless it has been withdrawn or had its duration reduced under Regulation 7(2), a 3.6 GHz Band Liberalised Use Licence to which these Regulations apply shall in any event expire on 31 July 2032."* (emphasis added)

[59] See Licence 3L1001 (eir), 3L1004 (Imagine) 3L1003 (Three) and 3L1002 (Vodafone) where the following is stated on the first page
> *"This licence … subject to revocation, suspension or withdrawal, expires on 31/07/2030."* (emphasis added).

[60] https://commission.europa.eu/topics/strengthening-european-competitiveness/eu-competitiveness-looking-ahead_en

Three opines that it indicates a potential direction of travel and that "*ComReg should at a minimum consider relevant aspects as options or inputs to any consultations it conducts*".

2.106 Vodafone, in the context of its submission for a broader spectrum policy review as outlined earlier, references the Draghi Report and its proposal therein to "*at least double the duration of frequency licences*", and it submits that *"there is a push at EU level … for greater harmonisation on Member State spectrum allocation and licensing rules."*

2.107 Vodafone also references the European White Paper on 'How to master Europe's digital infrastructure needs?'[61] and claims that *"this report also acknowledges that the current financial situation of the communications sector raises concerns for its capacity to source funding for the substantial investments needed to catch up with a significant global technological shift. It is clear that operators require more pro-investment policies in particular long-term certainty over their spectrum holdings."*

ComReg's assessment

2.108 First, ComReg notes that neither the Draghi Report or the EC White Paper are EU policy but, as respondents will be aware, are reports/discussion documents intended to generate discussion on any future EU policy.

2.109 Second, ComReg further observes that the Draghi Report has been the subject of much debate and there are views challenging Draghi's analysis and proposals on telecoms and competition policy. See for example:

- "*Draghi is right on many issues, but he is wrong on telecoms*"[62], from the Centre for Economic Policy Research ("CEPR") (emphasis added);
- "*Draghi's plan to rescue the European economy. Will EU leaders do whatever it takes*?"[63] from the Centre for European Reform ("CER"), where section 4 "Competition Policy" opens with *"While most of the report confronts EU leaders with difficult truths based on evidence and analysis, Draghi's proposals for reforming competition policy are a weak point" (emphasis added); and*
- "Is Europe handicapped in high-speed/capacity broadband networks?"[64] from CEPA, where its author, Dr. Chris Doyle summaries that "*In my view Draghi's report identifies many interesting issues, but in regard of telecoms he oversimplifies the story*". (emphasis added)

2.110 Thirdly, ComReg observes that the debate on future EU telecoms policy is ongoing and, to date, no EU legislation or draft EU legislation has been proposed in relation to the spectrum policy matters discussed in either the Draghi Report or the EC White Paper.

[61] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14168-White-Paper-How-to-master-Europes-digital-infrastructure-needs?_en
[62] https://cepr.org/voxeu/columns/draghi-right-many-issues-he-wrong-telecoms
[63] https://www.cer.eu/sites/default/files/pbrief_draghi_rpt_17.9.24.pdf , September 2024
[64] https://www.cepa.co.uk/images/uploads/documents/Draghi_081024.pdf

2.111 ComReg also notes that the European Commission recently issued contracts for three studies to help it define possible legislative proposals for a "Digital Networks Act". The studies' interim and final results are due in 2025. ComReg understands that spectrum policy considerations forms part of at least one of the studies, in relation to examining the regulatory enablers for cross-border networks to complete the single market.[65]

2.112 ComReg will, of course, continue to monitor relevant developments at European level.

2.7.2 MBSA2

Summary of Consultation 24/65

2.113 In Section 4.3.2 of Consultation 24/65, ComReg set out information on the MBSA2 award and, among other things, stated that:

- *"Following the discontinuance of Three's appeal[66] of ComReg's MBSA2 Decision[67], ComReg successfully completed the MBSA2 in January 2023 …" ;* and

- *"While the completion of the MBSA2 took longer than expected (in the main due to Three's appeal, which delayed the assignment of some MBSA2 spectrum rights by up to 14 months[68,69]) with consequential costs to the Irish economy[70], the MBSA2 nonetheless achieved a very positive outcome for Ireland and should promote further competition in the provision of MFCN or WBB services in Ireland[71]"*

Summary of respondent's view

2.114 One respondent, Three, commented on the MBSA2, stating that the text in Consultation 24/65 is "*open to misinterpretation as it does not give a whole or balanced representation of the appeal taken by Three and the basis on which the auction proceeded*" and "*could be interpreted as an implied criticism of the*

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65 MLex | EU telecom market faces more review as EU Commission outsources three studies

66 High Court Record Number: 2021/9 MCA.

67 Document 20/122, "Multi Band Spectrum Award – Response to Consultation and Decision", published 18 December 2020, available at www.comreg.ie

68 Based on the expected commencement dates in the MBSA2 Information Notice (Document 21/40) of 14 February 2022 (for the 700 MHz, 2.3 GHz and 2.6 GHz bands) and 16 October 2022 (for the 2.1 GHz band), spectrum rights in the:
- 700 MHz, 2.3 GHz and 2.6 GHz bands were delayed between circa 11 to 14 months; and
- 2.1 GHz band were delayed between circa 3 to 6 months.

69 Annex 2 of Document 24/11 sets out a chronology of the main events in the MBSA2 award and its litigation.

70 In the MBSA2 High Court proceedings, ComReg obtained reports from economic experts Dr. Dan Maldoom (ComReg Document 23/35a) and Professor J. Peter Clinch (ComReg Document) which estimate the likely economic benefits from the widespread deployment of 5G to be in the order of €1 bn per annum.

71 See
- Document 24/11a, *"Multi Band Spectrum Award (MBSA2) – DotEcon's Award Evaluation Report",* published 13 February 2024; and
- Document 24/11, ComReg Information Notice *"Multi Band Spectrum Award (MBSA2) – DotEcon's Award Assessment",* published 13 February 2024.

appeals process through the courts".

2.115 In this regard, Three states that:

- The loss to the Irish economy, as referenced by ComReg in footnote 130 of Consultation 24/65, was challenged in court and that it "*is misleading for ComReg to repeat these claims without also highlighting that material errors in their calculation have been pointed out and not responded to*.";
- ComReg's MBSA2 decision *"was flawed in that it placed Three at a material disadvantage*" and this flaw was highlighted by Three on multiple occasions (together with suitable alternatives) throughout the consultations;
- it was "*entirely predictable*" that the MBSA2 decision would be appealed and "*ComReg should have provided for this in its planning*". Like all interested parties, Three has a statutory right to appeal, which it exercised in this case, following which the process of the courts was followed;
- Following various appearances in court, the award process was permitted only to proceed to the point where ComReg had completed the auction, but not awarded any licences, *"i.e. ComReg was not permitted to complete the award process until the result was known to bidders and until Three had withdrawn its appeal."*
- *"the award process itself was flawed and that flaw remained. It just happens that in this case the flaw did not have a material impact on the outcome of the award, however that does not mean that the flaw was non-existent or that it was unnecessary for Three to take its appeal."*

2.116 In addition, Three submits that ComReg's planning for the award process should factor in the possibility of a legal challenge and that activities should therefore commence in sufficient time to mitigate the risk of delay from statutory appeals.

ComReg's assessment

2.117 While Three submits that the information presented on the MBSA2 award in Consultation 24/65 is *"open to misinterpretation as it does not give a whole or balanced representation of the appeal taken by Three and the basis on which the auction proceeded"* and "*could be interpreted as an implied criticism of the appeals process through the courts*", ComReg firstly observes that the information in Consultation 24/65:

- is factually correct (i.e. *"the completion of MBSA2 award took longer than expected (in the main due to Three's appeal which delayed the assignment of some MBSA2 spectrum rights by up to 14 months) with consequential costs to the Irish economy"*); and
- is written to provide an overview of what factually transpired in the MBSA2 award. No implied criticism of any party is intended.

2.118 ComReg addresses a number of specific points made in Three's submission below.

2.119 First, ComReg rejects Three's assertion that ComReg's MBSA2 decision was flawed and just because the outcome of the award did not show a flaw, "*that does not mean that the flaw was non-existent or that it was unnecessary for Three to take its appeal*". In this regard, ComReg observes that Three's substantive appeal was never determined, as it was withdrawn. Accordingly, there is no judicial determination of the arguments advanced by Three in the substantive appeal, ComReg's MBSA2 decision stands and ComReg sees no benefit in debating those arguments again in print.

2.120 Second, ComReg also rejects Three's assertion that it submitted *"suitable alternatives"* in the MBSA2 consultation to address ComReg's concerns. In arriving at the MSBA2 Decision[72], ComReg found none of those alternatives suitable.

2.121 Third, given that the object of the MBSA2 text in Consultation 24/65 was to simply set out factually what happened, ComReg sees no merit in engaging with Three's assertions that there were material errors in the calculation of the loss to the economy and that these errors were not responded to. While ComReg does not accept this assertion, it simply notes the comments of Mr. Justice Maurice Collins on the impact of delay as noted in paragraph 160 of his written judgement[73].

> *"160. The Decision here is one of enormous consequence for the State. The economic implications of delaying its implementation are very significant (these are set out in detail in the reports of Mr Maldoom and Mr Clinch)."* (emphasis added)

2.122 Fourth, in relation to Three's statement that "*the award process was permitted only to proceed to the point where ComReg had completed the auction, but not awarded any licences*", ComReg was of the view, when the limited stay was granted, that, once the auction was over, none of the harms postulated by Three would have arisen and that it was very likely this could be shown to the Court. As matters transpired, it is clear that none of the postulated harms arose and Three withdrew its appeal.

2.123 Finally, in relation to Three's assertion that it was entirely predictable that the MBSA2 Decision would be challenged, and that ComReg should factor this possibility in its planning, ComReg observes that:

- it is not possible to reliably anticipate whether a decision will be the subject of a challenge, the grounds of any such challenge, or the timeframes for the final resolution of any such challenge; and
- ComReg aims to commence award processes sufficiently prior to licence expiry.

[72] See for example, chapter 7, Annex 4 and Annex 14 of ComReg Document 20/122.

[73] The Court of Appeal, Record Number: 2022/189, "Judgment of Mr. Justice Maurice Collins delivered on 21 December 2022", available at www.courts.ie

2.7.3 Engagement with AirNav Ireland to resolve compatibility issues with MFCN in the 2.6 GHz band

Summary of Consultation 24/65

2.124 In Section 4.3.2 of Consultation 24/65, ComReg:

- noted that, during the previous work plan period of 2022-2024, it continued to engage with AirNav Ireland in relation to the deployment of filters at its aeronautical primary radars in the 2.7 – 2.9 GHz band; and
- set out its understanding of AirNav Ireland's plans for the completion of this project, where AirNav Ireland expected that it would:
  - commission the new radar (with filter) at Tooman (County Dublin) in Q1 2025;
  - decommission the unfiltered TA10M Radar at Dublin Airport 4 weeks after the commissioning of the Tooman radar; and
  - install the filter and change the frequency on the remaining Star 2000 radar in Dublin airport 6 weeks after decommissioning the TA10M radar.

2.125 Noting that the compatibility issue with AirNav Ireland's radars remained incomplete, ComReg proposed to retain this matter in its MFCN workplan, where ComReg, at paragraph 6.4, bullet (i), proposed that it would:

"(i) Engage with AirNav Ireland to resolve compatibility issues between MFCN use in the 2.6 GHz Band and AirNav Ireland's aeronautical primary radars which operate in the adjacent 2.7 – 2.9 GHz band"

Updated information – removal of technical restriction to protect TA10 radar

2.126 On 30 August 2024, and prior to the receipt of respondents' submissions to Consultation 24/65, ComReg wrote to each of the MBSA2 licensees with spectrum rights in the 2.6 GHz band (i.e. Imagine, Three and Vodafone), informing them that:

- AirNav Ireland had recently confirmed to ComReg that the TA10 Aeronautical Primary Radar in Dublin is out of service and will not be restored to service; and
- the technical conditions in the 2.6 GHz band to protect the TA10 Radar in Dublin are therefore no longer applicable.

2.127 ComReg also noted that the installation of a filter on the existing Star2000 Radar at Dublin airport remained to be completed, the timing of which ComReg understood to be in line with the project planning set out in Consultation 24/65.

Summary of respondents' views

2.128 Two respondents (Three and Vodafone) commented on the compatibility issue between AirNav Ireland's aeronautical primary radars in the 2.7 – 2.9 GHz band and MFCN in the 2.6 GHz band. These respondents are both MBSA2 licensees

with spectrum rights in the 2.6 GHz band.

2.129 Three submits that the unfettered use of MFCN in the 2.6 GHz band has been delayed beyond what would have reasonably been expected at the time of the auction, and that some of the value of this spectrum, (e.g. in terms of fees paid) is now lost. Three states that [✂ [redacted] ✂]. Three also submits that the downstream impact of this is to limit the ability of operators to offer the best possible service in the vicinity of the State's most significant international gateway.

2.130 Three notes that operators have rollout obligations in their licences with timelines and submits that "*these cannot be met if spectrum is unavailable*".

2.131 Vodafone welcomes ComReg's focus on resolving compatibility issues for the 2.6 GHz band and notes:

- that it has been kept informed via ongoing engagement with ComReg on the best estimates for times on completion of this key task, which Vodafone acknowledges *"is largely outside ComReg's control"*; and
- the recent correspondence from ComReg confirming that the technical restrictions to protect the TA10 aeronautical primary radar no longer applies.

2.132 However, Vodafone notes that the full technical conditions applicable to the existing Star 2000 Radar at Dublin Airport remain applicable, and that AirNav Ireland's plan is to now complete the installation of a filter on the existing Star 2000 radar in Q2 2025, which Vodafone claims is "*now a major issue*" and *"well outside the period initially advised in advance of allocation."*

2.133 Vodafone submits that [✂ [redacted] ✂]

Updated information – AirNav Ireland's projected timelines

2.134 In October 2024, correspondence from AirNav Ireland confirmed that:

- it is on track to commission the Star 2000 radar (with filter) at Tooman in Q1 2025; and
- the remaining indicative timelines as set out in Consultation 24/65 remain valid.

ComReg's assessment and final position

2.135 From the respondents' views, ComReg firstly observes that:

- the unfettered use of the 2.6 GHz band for MFCN services in and around the vicinity of Dublin airport is important to the respondents in terms of

allowing them to provide the best possible services to consumers in this area;

- ✂ [redacted] ✂]; and
- ComReg's proposal to continue to have a MFCN work plan item on this matter has been welcomed by Vodafone.

2.136 Noting the above and considering Three's submission that rollout obligations "*cannot be met if spectrum is unavailable",* ComReg reminds licensees of the importance of taking actions to meet their licence conditions, nothing that for:

- Vodafone and Three, as existing MNOs, 525 base stations are to be worked and used within 4 years of licence commencement (i.e. by 20 January 2027) for spectrum in the 2.6 GHz FDD and 2.6 GHz TDD; and
- Imagine, as an existing other operator, 290 base stations are to be worked and used within 4 years of licence commencement (i.e. by 20 January 2027) for spectrum in the 2.6 GHz FDD band and 2.6 GHz TDD band.

2.137 Further, ComReg observes that:

- aside from the technical restrictions to protect the STAR 2000 radar at Dublin airport, all the other technical conditions to protect airport radars have been lifted;
  - The restrictions in relation to the Shannon and Cork airport were lifted in April 2022, while the restriction in relation to the TA10 radar at Dublin Airport was lifted in August 2024; and
- the technical restriction to protect the STAR 2000 radar at Dublin airport does not prevent the rollout and use of 2.6 GHz base stations in the Dublin area.
  - Instead, it places *power flux* density *(pfd)* limits on the MFCN emissions that are permitted at the location of the radar receiver as set out in the conditions of the MBSA2 Liberalised Use Licence; and
  - there are mitigating actions that can be taken by operators to allow the use of the 2.6 GHz band in the Dublin area while respecting these technical limits, many of which are utilised in day-to-day network optimisation to manage interference (for example, power reductions, down tilt of antennas, antenna orientation etc).

2.138 With regard to AirNav Ireland's updated indicative timing for completing this project, ComReg notes that this represents a delay of one quarter compared to that previously advised to MBSA2 bidders on 8 July 2022, over two years ago, and prior to the MBSA2 auction which started in November 2022.

2.139 ComReg observes that this represents a relatively minor delay to the timing of the

overall project[74] and ComReg's notification to bidders of July 2022. Furthermore, this delay does not, in ComReg's view, support the claims of respondents that:

- the project has been *"delayed beyond what would have reasonably been expected at the time of the auction"*; (emphasis added) and
- this is *"well outside the period initially advised in advance of allocation." (emphasis added)*

ComReg's final position on MFCN work plan

2.140 Noting the above, ComReg is of the view that its MFCN work plan to continue to engage with AirNav Ireland to address MFCN compatibility issues in the 2.6 GHz band remains appropriate, being to:

(i) Engage with AirNav Ireland to resolve compatibility issues between MFCN use in the 2.6 GHz Band and AirNav Ireland's aeronautical primary radars which operate in the adjacent 2.7 – 2.9 GHz band;"

2.7.4 The 6 425 – 7 125 MHz band (the "Upper 6 GHz" band)

Summary of Consultation 24/65

2.141 In Section 4.3.3 of Consultation 24/65, ComReg noted that discussions were ongoing within the EC RSC to develop a mandate to issue to CEPT to carry out studies and develop technical conditions for the potential shared use of the Upper 6 GHz band for the provision of WBB ECS and by Wireless Access Systems, including Radio Local Area Networks (WAS/RLANs).

Summary of respondents' views

2.142 Vodafone submits that:

- *"Vodafone analysis shows that some urban 5G cells in larger markets will experience capacity challenges in the 5G capacity layer in around 2028-2029";* and
- *"the deployment of 6GHz spectrum for MFCN is the only economical and practical way to provide the additional capacity requirements required for mobile networks towards the end of this decade."*

Updated information

2.143 In December 2024, a positive opinion was provided from the Radio Spectrum Committee on a *"Draft Mandate to the CEPT to study feasibility of and develop least restrictive harmonised technical conditions for the potential shared use of the 6425-7125 MHz frequency band for the provision of wireless broadband by terrestrial systems capable of providing wireless broadband electronic communications services and by wireless access systems, including radio local area networks".* The EC will now formally submit the mandate to CEPT. The

[74] For example, in July 2021, the IAA obtained planning permission for the construction of a radar at Tooman. https://planning.agileapplications.ie/fingal/application-details/87420

mandate contain three tasks:

- Task 1 – study and assess coexistence and compatibility of (i) terrestrial systems capable of providing WBB ECS with incumbent spectrum users and (ii) WAS/RLANs with incumbent spectrum users;
- Task 2 – study feasibility of, and scenarios for, the potential shared use between terrestrial systems capable of providing WBB ECS and WAS/RLANs; and
- Task 3 – develop harmonised technical conditions.

2.144 ComReg also notes that the Radio Spectrum Policy Group, under its Work Programme for 2024 and beyond[75], is currently engaged in building a long-term vision for the Upper 6 GHz band and providing policy recommendations on how to best organise its future use. The RSPG's timing for same:

- Draft Opinion for public consultation: February 2025; and
- Final Opinion: June 2025.

ComReg's assessment and final position

2.145 ComReg notes the views of Vodafone and, further, that in Ireland the Upper 6GHz band is currently used by, or allocated to, a range of services, including fixed links (where there are circa 100 such links licensed), fixed satellite services (space-to-earth), programme-making and special events (PMSE) (e.g. wireless cameras), short-range devices and scientific uses (e.g. Earth exploration satellite services and radio astronomy).

ComReg's final position on MFCN work plan

2.146 Noting the above, ComReg is of the view that its MFCN work plan proposal in Consultation 24/65 remains appropriate, being to:

> *"(iii) Monitor and engage as appropriate into CEPT, EC and ITU groups discussing harmonisation measures for MFCN, noting in particular that discussions on the potential shared use of the 6 425 – 7 125 MHz band (i.e. "Upper 6 GHz band") would be expected to take place during this period."*

2.7.5 The 40.5-43.5 GHz frequency band ("42 GHz band")

2.147 On 18 July 2024, Commission Implementing Decision (EU) 2024/1983[76] was adopted. This decision harmonises the 40.5-43.5 GHz frequency band ("42 GHz band") for terrestrial systems capable of providing WBB ECS in the Union and has an implementation date of 31 July 2026.

2.148 Noting the above, ComReg proposes to modify its work plan proposal as follows to explicitly include consultation on the 42 GHz band:

[75] https://radio-spectrum-policy-group.ec.europa.eu/system/files/2023-10/RSPG23-045final-Draft_RSPG_WP24_and_beyond_proposal.pdf
[76] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401983

“(viii) Consult, towards the middle of the 2025-2028 period, on spectrum for WBB/Mobile Fixed Communication Network (“MFCN”) use. Such a consultation would, among other things, consider the expiry of MBSA1 licences in 2030 and the multiple harmonised spectrum bands for WBB/MFCN use. Spectrum in the 1.4 GHz [and 42 GHz] bands would be considered, and perhaps spectrum in the 26 GHz band should clear evidence of demand emerge.”

3 Non-MFCN work plan items 2025 - 2028

3.1 Summary of Consultation Chapters

3.1 In Chapter 6 of Consultation 24/65, ComReg outlined its draft spectrum management work plan for the period 2025–2028 for specific radiocommunication services, whilst observing the need for appropriate prioritisation of same.

3.2 The below section outlines the respondent's submission and ComReg's consideration of the submissions.

3.2 Market surveillance of products

Summary of Consultation 24/65

3.3 In section 6.2.4, ComReg set out its proposed work plan items for market surveillance for the period 2025 to 2028, they include the following items;

- conduct compliance checks on products:
  - at their point of entry into the Union market in the State, through cooperation with Customs;
  - during authorised officer visits at the premises of economic operators;241
  - made available on the market via online offerings to End-Users in Ireland on e-commerce platforms; and
  - that come to ComReg's attention from reactive workstreams, where required.

Respondents' Views

3.4 ComReg received one response in relation to market surveillance of products. The IRTS submitted that it welcomes market surveillance of products and states that:

(i) it hopes there will be resources allocated to this area to address the growing influx of non-compliant products being sold without CE marks on the box.
(ii) the testing and removal of non-compliant products from the EU market is poorly maintained at EU level.

3.5 The IRTS also raised the issue of solar Photo-Voltaic ("PV") panels potentially causing wideband interference to radio amateur equipment and submits that ComReg relay the importance of controlling EMF to Safe Electric and SEAI.

ComReg's Assessment

3.6 ComReg welcomes the views of the IRTS in relation to market surveillance. In relation to point (i) above, ComReg's Product Safety Unit (PSU), has specific responsibility for discharging its duties under the Radio Equipment Directive[77]

[77] Directive (2014/53/EU)

(RED) and the Electromagnetic Compatibility Directive[78] (EMCD).

3.7 ComReg undertakes market surveillance on both a proactive and reactive basis on relevant products. This is to ensure that non-compliant products are identified, administratively assessed (and if necessary, technically tested) and, where necessary, action taken. If adequate corrective action is not undertaken by the Economic Operator (EO) to address non-compliance, the products are either removed from sale or prevented from being placed on the market. In April 2024, ComReg published the Product Safety Annual Report[79] outlining the key activities undertaken by the PSU in the previous 18 months. Key highlights from this report include:

- the removal of in excess of 1,900 non-compliant products from entering the market through engagement with Revenue Customs;
- the removal of 2,200 non-compliant products from sale on online platforms; and
- details of several communication campaigns that were run to help economic operators understand their obligations.

3.8 In relation to point (ii) the IRTS did not provide any evidence to support its view that the testing and removal of non-compliant products from the EU market is poorly maintained at EU level. ComReg notes that according to the EU database ICSMS[80] in the last year there were 797 investigations in respect of RED products and 674 investigations in respect of EMC products across all market surveillance authorities ("MSAs"). Ireland was in the top 5 and top 10 respectively of RED and EMC investigative cases launched.

3.9 Market surveillance activities are conducted on a targeted basis and take a risk-based approach. Products found to be non-compliant are reported to the relevant economic operator to take corrective action. If corrective action is not taken by the economic operator, then enforcement action is taken by the MSA such as a sales ban or recall.

3.10 In the past 12 months, across the single market there have been 26 RED product sales bans and 3 EMC product sales bans. There were also 92 notifications for recalls against communication equipment and electrical appliances[81]. ComReg refers readers to its Product Safety Unit Annual Report which provides more detail in relation to its work in respect of non-compliant products within its remit.

3.11 In relation to solar PV panels matter, ComReg is aware, through its participation at EMC AdCo, of anecdotal reports of EMC interference to radio amateurs from poorly installed solar PV panels. ComReg understands that these reports pertain to the power convertor cabling of the solar panel which may generate electromagnetic disturbance to radio amateur equipment installed in close proximity.

[78] Directive (2014/30/EU)
[79] Product Safety Unit Annual Report 2023 (comreg.ie)
[80] Information and Communication System on Market Surveillance
[81] https://ec.europa.eu/safety-gate

3.12 ComReg has not received any such complaints from radio amateurs operating in Ireland. However, ComReg has, through its participation in the NSAI Electrotechnical Committee (ETC/TC 2), brought this matter to the attention of NSAI who is responsible for the National Rules for Electrical Installations (Wiring Rules)[82]. ComReg will continue to monitor this matter through its participation in EMC AdCo and ETC/TC 2.

3.3 Satellite services

Summary of Consultation 24/65

3.13 In section 6.2.9 of the consultation, ComReg set out its proposed work plan for satellite services for the period 2025 to 2028, including amongst other items the following matters:

- to engage with the EC and other Member States as appropriate in considering any future authorisation regime for the frequency bands 1980-2010 MHz and 2170-2200 MHz. In the meantime, ComReg will monitor compliance of licence conditions by the existing Mobile Satellite Services ("MSS") with Complementary Ground Control ("CGC") licensees; and

- to continue issuing satellite earth station ("SES") licences, updating Document 20/47[83], and contributing to work within ECC on the outcomes of WRC-23 and in preparing a common position for the relevant satellite service agenda items scheduled for WRC-27.

Respondents' Views

3.14 ViaSat submits that ComReg should:

(i) include in its operating plan for 2025-2028 an action related to continued updating of the SES guidelines document (ComReg 24/48[84]) to reduce SES license fees and introduce licensing conditions for large NGSO systems supporting equitable access;

(ii) support on-going ITU studies towards the improvement of Recommendation ITU-R S.1503 (including consideration of any new items and studies) and finalising the aggregate EPFD methodologies under Resolution 76 which support the WRC-23 decisions;

(iii) wait until the studies on Agenda Item 1.13[85] have been presented and considered at WRC-27 before allocating or authorising Supplemental Coverage from Space for direct-to-device ("D2D") communications in spectrum allocated to terrestrial services. ViaSat is of the view that the Supplemental Coverage from Space approach to D2D requires significant changes to regulatory frameworks globally to allow for

[82] NSAI publishes new National Rules for Electrical Installations | NSAI

[83] https://www.comreg.ie/publication/permitted-licence-exemptions-for-terminals-for-satellite-services

[84] https://www.comreg.ie/publication/information-notice-on-the-permitted-licence-exemptions-for-terminals-for-satellite-services

[85] WRC-27 Agenda Item 1.13: to consider studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage, in accordance with Resolution 253 (WRC-23), https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A0000100013PDFE.pdf

different uses of spectrum than existing allocations support, and careful management to avoid interference into existing spectrum uses;

(iv) ensure the protection of MSS operations in the 1518-1559 MHz band and, in the case of inclusion of the 1492-1517 MHz band segment in the proposal, to consult on the award of the 1.4 GHz band for MFCN; and

(v) ensure protection of satellite broadband services in the 28 GHz band in the case of allocating or authorising any part of the 26 GHz band for terrestrial IMT/5G.

ComReg's Assessment

3.15 ComReg addresses the matters raised in ViaSat's submission as follows:

(i) Regarding ViaSat's suggestion that ComReg should update its SES guidelines document (ComReg 24/48) to reduce SES license fees and introduce licensing conditions for large NGSO systems supporting equitable access. ComReg notes that during the period 2021 to 2023, it consulted on, and implemented, a new licensing regime for SES including, amongst other things, a new fee structure for SES licensing.[86] To inform the initial consultation, ComReg interviewed a range of stakeholders, including ViaSat, during Q3 2021.

Following the publication of its consultation, ComReg document 21/135[87] and the SES licensing review interim report, ComReg document 21/135A[88], ViaSat stated by email that it would provide a response to the Consultation 21/135, setting out its views, however ViaSat did not provide any such response to the consultation and did not engage any further with the matter.

In ComReg Document 22/56[89], ComReg committed to monitoring the demand for SES following any final decision and consider adjusting the level of fees over time so that total fees are broadly in line with ComReg's administrative costs. ComReg further noted that to avoid conducting repeated reviews, a fees review would only occur when there is a significant over or under recovery of ComReg's administrative costs or where there has been a significant change in market circumstances. This would ensure that the new fees introduced as part of this review would be stable and provide certainty to licensees.

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[86] https://www.comreg.ie/publications?date_from=2021-10-29&date_to=2024-08-01&orderby=date__desc&limit=10&query=Satellite+Earth+Station&category=&type=&start-month=10&start-year=2021&end-month=08&end-year=2024

[87] ComReg Document 21/135 - Review of the Satellite Earth Station Licensing Scheme: https://www.comreg.ie/publication/review-of-the-satellite-earth-station-licensing-scheme

[88] ComReg Document 21/135a - Satellite Earth Station Licencing Review – Interim Report : https://www.comreg.ie/publication/satellite-earth-station-licencing-review-interim-report

[89] ComReg Document 22/56 – Review of the Satellite Earth Station Licensing Regime: Response to Consultation and Further Consultation – published 4 July 2022. https://www.comreg.ie/media/2022/07/ComReg-2256s.pdf

ComReg stated in paragraph 3.65 of ComReg Document 23/96[90] that: *"its views on the use of administrative cost pricing for SES are not fixed and are subject to review in the future. While ComReg does not expect the situation to change for the foreseeable future, should circumstances change sufficiently, ComReg may need to reconsider its position, up to and including the possible reversion to opportunity-cost pricing if appropriate."*

ComReg notes that the licensing fees were established with the making of Statutory Instrument No. 96 of 2024 Wireless Telegraphy (Satellite Earth Station Licence) Regulations 2024.[91] Therefore, any proposal to change the current fees for SES would require a consultation process and the making of new Regulations by the Minister for Communications. In that regard and noting its views set out in document 22/56 and 23/96, to provide certainty to SES applicants and licensees, ComReg does not intend on reviewing the licensing fees for SES during the 2025-2028 period. ComReg will, however ,monitor the SES market and the effect, if any, the fees may have on ComReg's administrative costs;

(ii) As proposed in the Consultation, ComReg intends on preparing a common position for the relevant satellite service Agenda Items scheduled for WRC-27. In preparing a common position, ComReg will take into consideration the views made known to it by industry, including ViaSat's submission on on-going ITU studies;

(iii) Regarding D2D communications in spectrum allocated to terrestrial services, ComReg observes that this topic is currently being discussed within CEPT, the EC and ITU and ComReg's intends on monitoring those discussions and engaging as appropriately; and

(iv) Any consultation on the future use of the 1.4 GHz and 26 GHz bands as envisaged in ComReg's MFCN/WBB work plan activities (see Document 24/99a) would also consider compatibility and co-existence matters with adjacent services and what, if any appropriate measures would be required to address any issue identified.

3.4 The Radio Amateur Service

3.4.1 Summary of Consultation 24/65

3.16 In section 6.2.10 of the consultation, ComReg set out its proposed work items for radio amateur services for the 2025 to 2028 period, including proposals to:

(a) begin a comprehensive review of the Amateur Service licensing regime (including a proposed novice licensing framework, coordination of automatic stations, the Harmonised Amateur Radio Examination Certificate ("HAREC")

[90] ComReg Document 23/96 – Review of the Satellite Earth Station Licensing Regime: Response to Consultation and Decision – published 4 October 2023. https://www.comreg.ie/publication/review-of-the-satellite-earth-station-licensing-regime-response-to-consultation-and-decision

[91] https://www.irishstatutebook.ie/eli/2024/si/96/made/en/pdf

examination format, callsign allocations, etc.) during the 2025-2028 period; and

(b) consider further the matter of a general increase in permissible power for all licensees and/or individual authorisations for licensees wishing to operate at higher powers. Included in these considerations will be matters related to compliance with NIR, spurious emission and measurement of power.

3.4.2 Respondents Views and ComReg's Assessment

3.17 In response to the proposed work items for the Radio Amateur Service, ComReg received thirty-seven responses from individual Amateur Station Licensees and thirteen responses were from clubs, organisations, groups or societies with an interest in the Amateur Radio Service.

Amateur Station Novice Licensing

3.18 Respondents observed that ComReg has not implemented an entry-level or novice-level licensing regime during the 2022-2024 strategy period as indicated in section 5.2.9 of ComReg Document 21/136.[92] Respondents claim that 31 European countries have an Amateur Station novice licensing regime in place[93]. Respondents placed importance of amateur radio activities and highlighted how, in their view, they can enhance STEM capabilities in young individuals.

3.19 Respondents agree with ComReg's assessment at paragraph 6.59 in the Consultation - in that the absence of a novice licensing regime does not currently impede anyone from learning about electronics or radio propagation. Respondents note that there are numerous opportunities for individuals to explore these fields through other means, including the online courses of the National Short Wave Listeners Club[94] ("NSWLC").

3.20 Respondents also contend that a well-structured Amateur Station novice licensing framework, if implemented, should complement these existing opportunities and provide an additional pathway for individuals who wish to become involved in amateur radio. Respondents further submit that, it is essential in their view that such a framework does not compromise the standards and requirements for obtaining a full HAREC licence.

3.21 The following ancillary views are also expressed regarding a potential future novice licensing regime:

- Amateur Station novice licence call signs should contain characters to identify the Licensees as holding a novice licence, so other amateurs can be sure that they are in contact with a legitimate novice. Another respondent suggests that novice licensees operating in the VHF/UHF bands would end with the letter 'E' for Entry, for example EI2AAE EI2ABE, EI2ACE;

[92] ComReg Document 21/136 – Radio Spectrum Management Strategy Statement 2022 to 2024 – published 17 December 2021.

[93] 23 CEPT Countries have implemented ECC Recommendation (05)06 establishing an Amateur Station Novice Licensing regime – See Annex 2 of https://docdb.cept.org/download/4413

[94] https://swl.ie/

- several respondents submit that there should be restrictions to power levels and HF spectrum access for novice licensees, permitting use up to 10 watts in the VHF and UHF bands only;

- to encourage upskilling to a full Amateur Station Licences, novice licences should be granted for a maximum duration of two years;

- while some responses support a two year limit they also favour the option for licence renewal; and

- a tiered approach from novice to full licence would answer ComReg's concern as to how an adequate level of competence can be achieved.

ComReg's assessment

3.22 ComReg thanks respondents for their views regarding ComReg's proposed work items for the Amateur Service. In that regard, ComReg sets out its views to the submissions as follows:

- The implementation of any licensing regime requires undertaking projects which are multi-faceted and require at a minimum engineering, economic and legal expertise to draft consultation documents, including new draft Regulations and guidelines.

- At section 5.1 of ComReg Document 21/136, ComReg set out how it appropriately prioritises its spectrum management workplan activities. ComReg notes that those activities are also subject to the availability of resources. However resource constraints meant that ComReg could not commence work on a new licensing regime for Amateur Station novice licences.

3.23 However, subject to resourcing availability and as set on in Consultation 24/65, ComReg intends to begin a comprehensive review of the Amateur Service licensing regime (including a proposed novice licensing framework) during the 2025-2028 period.

HAREC Exams

3.24 Respondents contend that ComReg should introduce online alongside in-person examinations, adding that the exam could be scheduled at the student's convenience. Respondents further submit that twice-yearly in-person exams are helpful, but in their view, they fall short for many students who cannot travel or attend the scheduled dates. Those individuals then face a further six-month wait, perhaps losing interest or confidence in taking the HAREC exam.

ComReg's Assessment

3.25 As noted in paragraph 6.61 of the Consultation, ComReg proposed to begin a comprehensive review of the Amateur Service licensing regime (including a proposed novice licensing framework, coordination of automatic stations, the HAREC examination format, callsign allocations, etc.) during the 2025-2028 period.

3.26 With regard to the format of the HAREC examination, ComReg intends to consider other appropriate formats, such as on-line, for conducting the examinations to complement in-person examinations.

Power Levels

3.27 Respondents contend that ComReg should increase the power limit for amateur radio operators in Ireland to align with those set by other European national regulatory authorities. However, some respondents do express the need for caution when considering an increase to power levels as, among things, higher power levels can lead to increased interference in frequency bands, making it more difficult for Amateur Station Licensees, particularly those using low-power equipment, to communicate effectively.

ComReg's Assessment

3.28 ComReg notes the respondents' views regarding power limits and intends to consider this matter in full as part of the comprehensive review of the Amateur Service licensing regime.

23cm Band

3.29 ComReg notes that several respondents submit that they support ComReg not making any changes to the 23cm band.

Portable, Mobile and Maritime - Mobile Operations.

3.30 Respondents submit that ComReg should reinstate the use of the /P suffix for callsigns, as many amateur radio enthusiasts enjoy operating "portable" outdoors.

3.31 Other responses, while welcoming ComReg's consideration of the current limitations applicable to mobile and maritime-mobile operations, noted that addressing these limitations is crucial for ensuring that Irish amateur radio operators can fully participate in a variety of operating environments, similar to their counterparts in other countries.

ComReg's Assessment

3.32 For the avoidance of doubt, portable operation is currently permitted and the lack of a specific guideline covering the use of /P is a lacuna to be resolved. However, ComReg reminds Amateur Station Licensees that the use of '/M' and '/P' suffix to their callsign does not confer any rights to operate from any location in Ireland. Regulation 4(1) of S.I. No. 192/2009 - Wireless Telegraphy (Amateur Station Licence) Regulations 2009 sets out that:

"*A Licence granted under these Regulations does not grant to the Licensee named therein any right, interest or entitlement other than the right to keep, install, maintain, work and use Apparatus at a location or locations as specified in Part 2 of the Licence.*"

3.33 ComReg intends to review section 5 of the Amateur Station Licence Guidelines (ComReg Document 09/45, as amended) which covers the various modes of operation with a view to:

- Either adding the use of the '/P' suffix in particular circumstances or doing away with some or all the current mandatory requirements for suffixes if appropriate; and

- reviewing the obligations placed on stations operating '/M' or '/'MM, e.g. frequent transmission of location where instead this could be part of the logbook entry, operation in harbour areas, etc.

3.34 Furthermore, while currently ComReg requires certain suffixes to be used in certain situations, in general radio amateurs in Ireland are not restrained in respect of adding other suffixes to their call signs where appropriate. For example – adding the '/QRP' suffix to their callsign when operating low power.

Additional spot frequency at 5 MHz

3.35 The Marconi Radio Group request that, while acknowledging that priority must always be given to commercial licensed operations, ComReg should consider:

- adding the spot frequency of 5373 kHz to harmonise Irish allocations with Canada, the USA and the UK and to compensate for extraneous digital and RTTY emissions around 5400 – 5405 kHz; and
- opening the whole band (ComReg is assuming this means the band 5.0 – 5.5 MHz) for all modes of operation.

3.36 The Marconi Radio Group contends that many countries allow unrestricted use across the whole band in all modes and some of these countries allow power up to 1 kW (30 dBW) across the whole band.

ComReg's Assessment

3.37 The 5000 - 5500 kHz spectrum band is primarily used by military and defence forces and not for commercial operations. The NATO joint civil/military frequency agreement[95] notes the use of this band for land military systems, maritime military systems, radiolocation (military) and aeronautical military systems[96]. The use of the current six spot frequencies with a limit of 200 W P.E.P power is a compromise reached with the Irish defence forces[97] in late 2008. In the current situation, ComReg does not see scope to engage with the Irish defence forces in respect of changing the current usage of this band.

3.38 In respect of the portion of the band 5351.5 – 5366.5 kHz a maximum e.i.r.p of 15W is permitted – this is in accordance with ITU Radio Regulation, Article 5, footnote 5.133B "*Stations in the amateur service using the frequency band 5 351.5 - 5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.)*".

[95] https://english.nmhh.hu/document/211426/NATO_Joint_Civil_Military_Frequency_ Agreement_NJFA .pdf

[96] ComReg notes that Ireland's relationship with NATO is set within the framework of Partnership for Peace (PfP), which Ireland joined in 1999. Maintaining harmonised use of the radio spectrum, essential for military operations is required to ensure interoperability with allied forces.

[97] Please see - https://www.irts.ie/cgi/showarchive.cgi?081026.txt

3.5 Radio Frequency Interference Investigations

Summary of Consultation 24/65

3.39 Section 3.2.1 of the consultation describes how radio frequency interference is investigated, and it provides annual statistic about spectrum intelligence and investigations.

Respondents Views

3.40 In its response Three submits that the process for reporting, investigation and resolution of interference issues is not reflected in the summary set out in the draft plan. In particular Three submits that;

(i) the volume of reported issues materially understates the actual incidence of interference issues due to operational and administrative limitations in the process for making reports; and
(ii) that a work item should be added to the Workplan to review the operational and administrative processes for reporting interference issues.

ComReg's Assessment

3.41 ComReg observes that it introduced a revised RFI complaint classification process along with revised complaint response times in July 2020, following a public consultation[98]. The previous classification process placed an undue emphasis on the identity of the complainant rather than the impact that the reported interference had on the complainant's ability to provide service. ComReg sought to address this, among other things, by placing emphasis on the nature and impact of the reported interference and the complainant's ability to continue to provide services.

3.42 In tandem with the introduction of the revised RFI complaint classification process and associated response times, ComReg also introduced a reporting protocol for all RFI complaints and a process for closing complaints once the investigation is complete. The reporting protocol requires complainants to provide evidence of suspected interference, and additionally that they have taken reasonable steps to ensure that the interference is outside of their control. This focused and in-depth information required for RFI reporting assists ComReg in its triage and prioritisation of complaints and in the efficient use of its finite resources.

3.43 This is an important consideration and not one without good reason. For example, Three will recall that in late 2020, it submitted a number of reports of harmful interference to its network that, when investigated by ComReg, transpired to be as a result of faulty repeaters deployed on its own network. In effect the interference being experienced by Three was entirely and exclusively of its own making. Investigating what turned out to be spurious RFI complaints, necessitated the inefficient use of ComReg resources to the detriment of other users of the radio spectrum. On foot of this and other experiences, ComReg overhauled its procedures, including the introduction of additional information requirements for all reports of RFI. ComReg is pleased to report that this modification has proved very successful and that as a consequence there has not been any further instance of

[98] https://www.comreg.ie/publication/response-to-consultation-on-the-management-of-radio-spectrum-interference-complaints

a “false” RFI report in the intervening period.

3.44 It is unfortunate that Three did not provide any details as to what specific “*operational and administrative limitations*” it was referring to in its submission. Indeed ComReg notes that Three has not expressed any such concerns to ComReg’s Spectrum Intelligence and Investigations unit which is responsible for responding to reports of RFI and with whom Three would have a close working relationship. Consequently, it will be appreciated that ComReg is unable to further consider the merits of Three’s submission at this time.

3.45 ComReg observes that there were no other submissions received, either positive or negative, in relation to ComReg’s RFI reporting protocol, as such, it would appear that Three’s view on this matter is not shared by other stakeholders. ComReg observes that the introduction of this revised RFI reporting process has resulted in a reduction in the number of unsubstantiated reports of RFI to ComReg and has enabled it to better utilise its limited field resources. Therefore, ComReg will not be adding a review of its RFI reporting protocol to its work plan for the 2025 – 2028 period.

3.6 The National Broadband Plan

Summary of respondents’ views

3.46 In its submission to Consultation 24/65, Imagine makes a number of comments related to the National Broadband Plan (NBP) as summarised below.

3.47 Firstly it states that *“Nowhere in the RSMOP, or the 2025-2027 ComReg Strategy Statement [ComReg Document 24/68], is there any mention or discussion of the impact of the NBP and how it might influence and shape spectrum policy and how ComReg intends to take account of this while ensuring it is able to meet many of the stated goals related to spectrum management.”*

3.48 Secondly and in relation to ComReg’s calculation of the value of the radio spectrum to Irish Economy as set out in Section 2.2.1 of Consultation 24/64, Imagine:

- queries where ComReg intends *“to include the impact of the fibre based NBP rollout on the economic contribution of wireless based broadband services and operators whether FWA or MBB based”;* and
- states that *“the withdrawal of [Dense Air Ireland] DAI from the market should also be considered in this regard”*

3.49 Thirdly and in relation to Section 5 of Consultation 24/65, the factors informing ComReg’s proposed work plan for 2025 to 2028”, Imagine states that it believes that *“the impact of the NBP state aid driven fibre network on wireless broadband deployments (FWA, MBB) should be considered as a factor affecting the demand for radio spectrum whether in the RSMOP or in the ComReg Strategy Statement 2025-2027”*

3.50 Fourthly, in relation to Annex 1 of Consultation 24/65, “*Summary of legal framework and statutory objectives relevant to the management of the radio spectrum*”, Imagine queries how ComReg’s obligations to promote competition

comply with the rollout of the NBP, and states:

"Promotion of Competition

Par.A1.55 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"

> *"How is this going to be achieved when commercial operators who must invest considerable sums in spectrum and network deployment must compete in areas where their NGA capable networks have been overbuilt by the state aid funded NBP network?"*

"Par.A1.63 This states that

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

• 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"

- *"Section 12(6) of the 2002 Act is not specific to just achieving radio frequency management objectives and applies equally to ensuring that there is no discrimination against wireless technologies. In our opinion ComReg has failed to meet this requirement since there is clear evidence of distortion and restriction of competition in the electronic communications sector caused by the NBP."*

ComReg's assessment

3.51 In relation to Imagine's first, second and fourth comments, ComReg observes that:

- The NBP is an Irish Government state-led project which was also approved by the European Commission, and in that context, it is difficult to understand how the NBP project could contravene ComReg's objectives to promote competition; and

- While Consultation 24/65 and ComReg Strategy Statement [ComReg Document 24/68] do not explicitly discuss how the NBP might shape demand for spectrum, ComReg, at a high level, understands that it could both drive and diminish the demand for spectrum. For example:

  - The NBP would likely reduce the demand for spectrum for broadband services provided by fixed wireless access as the NBP would be providing an alternative service with fibre; and
  - The NBP might increase the demand for spectrum in certain areas, as new wireless services (e.g. IOT) may emerge in areas where previously fibre broadband access points were not available.

3.52 In relation to Imagine's second comment regarding ComReg's calculation of the contribution of radio spectrum to the economy.

- ComReg is of the view it is not appropriate to assess the impacts of fibre rollout in the economic contribution estimate the as this would not be aligned with the approach described in paragraph 2.19 of Section 2.2.1 of Consultation 24/65, which measures economic activity by calculating Gross Value Added in sectors where spectrum is a core input (i.e. where without it, demand for services in that sector would be significantly reduced).

- Regarding Imagine's submission pertaining to Dense Air, ComReg will take account of the relevant market developments at the time of each estimate, subject to data availability.

Annex 1: List of Respondents to Consultation 24/65

A 1.2 ComReg received sixty-seven submissions to consultation 24/64, which are listed below and published in a separate document, 24/xx

	Respondent
1	Three
2	Vodafone
3	Imagine
4	Eir
5	Viasat
6	Fogarty Fenwick Ltd
7	TG4
8	Titan Solutions
9	Galway City Innovation District
10	UMAX Systems Ltd
11	Druid software Ltd
12	NemetonTV
13	Benetel
14	FMG ELECTRONICS (DIST) LTD
15	Sigma
16	RTÉ
17	Port of Galway
18	Dalkey Scouts
19	Marconi Radio Group

20	5th Mayo Scouts Radio Club
21	IRTS
22	East Leinster Amateur Radio Club
23	Radio Scouting Ireland
24	Kilternan Scouts Group
25	Delta Mike, David Maxwell Ireland radio Operators
26	Galway Radio Club
27	Limerick Clare Amateur Radio Club
28	Shannon basin Radio club
29	Longwood Scouts
30	Gary Watts Scouting Ireland
31	Michael O'Conor
32	John Tubbritt
33	Padraic Loghnane
34	Leonard McDonnell
35	David McMullan
36	Richard Hendy
37	Marty Grady
38	John Holland
39	[redacted]
40	Brian Keating
41	Pat Baynes
42	Albert White
43	Daithi Roe

44	[redacted]
45	[redacted]
46	Robbie Phelan
47	Lez Ferguson
48	John Kelly
49	Troy Gogan
50	Hugh O Donnell
51	Fran O Mara
52	Tony Brethnach
53	Clive Leinster
54	Crevan Lenaghan
55	Damien Mc Shane
56	Keith Wallace
57	Irish Elf Reuben Forde
58	Patsy McCabe Obelisk
59	Gordon Adams
60	Reuben Forde
61	William McGuigan
62	[redacted]
63	Paraic Nolan
64	John Ronan
65	Trevor McGinnity
66	Ana Cañizares Bejarano
67	Derek Kelleher