An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Proposed Licensing Framework for Railway Mobile Radio

Consultation (with Draft Decision and Draft Regulations)

Consultation

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An Coimisiún um Rialáil Cumarsáide
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1 Introduction

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.

2 Radio spectrum is a medium by which information may be transmitted wirelessly over distances ranging from a few metres to thousands of kilometres. It is a valuable national resource underpinning important economic, social and communications activities. These include widely used services, such as mobile/fixed wireless communications and broadband, radio and TV broadcasting, and the safe operation of air and maritime transport. However, it is a finite natural resource with competing uses and users and so it must be managed effectively and used efficiently.

3 The existing radio spectrum licensing regime for railway communications was introduced by ComReg in 2013[1] to facilitate the deployment of Global System for Mobile Communications – Rail ("GSM-R") technology to support railway operations.

4 Iarnród Éireann's (t/a Irish Rail) GSM-R Licence was granted for a maximum period of 10 years and cannot be renewed following its expiry on 26 November 2025.

Railway Mobile Radio

5 GSM-R is based on specifications that were finalised 20 years ago and, due to technological obsolescence, industrial support for GSM-R is unlikely to be assured after 2030. The Future Railway Mobile Communication System ("FRMCS")[2] will succeed GSM-R as one of the essential elements of the European Railway Traffic Management System[3] as it will support railway digitalisation and service innovation.

[1] https://www.comreg.ie/industry/radio-spectrum/licensing/search-licence-type/gsm-r-2/
[2] In 2012, the UIC launched a project called Future Railway Mobile Communication System, which aims to find a new Radio Access Technology (RAT) for RMR, such as 4G LTE or 5G NR [TR 103 333 - GSM-R networks evolution]. The first FRMCS trials begun in 2023 and a parallel operation of GSM-R and FRMCS will continue across Europe until 2035[FRMCS | UIC - International union of railways], with an expected shutdown of GSM-R after 2035.
[3] https://www.era.europa.eu/domains/infrastructure/european-rail-traffic-management-system-ertms_en

6 FRMCS offers a higher quality of service, uses spectrum more efficiently and, should be capable of integrating new applications and technological developments. It is also planned to deliver more in terms of applications such as Automatic Train Operation (ATO) or the Connected Driver Advisory System (C-DAS).

7 The term used to refer to GSM-R and its successor(s), including the FRMCS, and, used for the purpose of this consultation, is Railway Mobile Radio ("RMR"). To support a common approach to radio spectrum allocation for RMR across the Union for Railway operations, on 12 July 2018, the European Commission ("EC") issued a mandate[4] ("Mandate") to the European Conference of Postal and Telecommunications Administrations (CEPT) to consider the required amount of spectrum, identify appropriate spectrum bands, study technical feasibility and develop harmonised technical conditions for a sustainable and efficient use of such bands for RMR.

8 In response to the Mandate, the CEPT delivered CEPT Reports 74[5] and 76[6] and on 28 September 2021, the EC published Decision (EU) 2021/1730 establishing harmonised conditions for the availability and efficient use of radio spectrum for RMR in the bands 874.4-880.0 MHz, 919.4-925.0 MHz and 1900-1910 MHz. [7]

9 In summary, this consultation proposes:

(a) a national licence type due to the railway network configuration and to facilitate future network expansion (see section (3.4);

(b) a licence duration of 20 years to support the migration to future radiocommunications systems (section 3.5);

(c) technical conditions and frequency arrangements as recommended by CEPT Reports 74, 76, and 80[8], and set out in Decision (EU) 2021/1730 (see sections 3.6 and 3.7); and

(d) Long-Run Opportunity Cost Licence fees to ensure the optimal use of the spectrum (see sections 4 and 5).

10 ComReg seeks and welcomes the views of interested parties on all aspects of ComReg's preliminary views as set out in this document. Those views will be

[4] https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=57748
[5] CEPT Report 74 – https://docdb.cept.org/download/132
[6] CEPT Report 76 – https://docdb.cept.org/download/137
[7] Commission Implementing Decision (EU) 2021/1730 of 28 September 2021 on the harmonised use of the paired frequency bands 874,4-880,0 MHz and 919,4-925,0 MHz and of the unpaired frequency band 1 900-1 910 MHz for Railway Mobile Radio – Implementing decision - 2021/1730 - EN - EUR-Lex
[8] CEPT Report 80 – https://docdb.cept.org/download/3466

used to inform ComReg's future consideration of a new licensing regime for RMR.

11 This document is laid out as follows:

- **Chapter 2:** sets out background information;
- **Chapter 3:** describes ComReg's preliminary views regarding a proposed licensing regime for Railway Mobile Radio;
- **Chapter 4:** sets out the draft regulatory impact assessment;
- **Chapter 5:** sets out the preliminary fees for RMR;
- **Chapter 6:** sets out draft decision instrument;
- **Chapter 7:** sets out the next steps in the process;
- **Annex 1:** sets out the relevant Legal Framework;
- **Annex 2:** sets out the status of GSM-R deployment in Ireland; and
- **Annex 3:** sets out the proposed draft licensing regulations.

2 Background Information

12 On 27 November 2015, ComReg granted a 10-year GSM-R licence to Irish Rail for the rights to use the 876.2 - 879.6 MHz/921.2 - 924.6 MHz frequency range to enable the rollout of a GSM-R radio communication system for railway operations. That licence will expire on the 26 November 2025 in accordance with Regulation 8 of the Wireless Telegraphy (GSM for Railway Licence) Regulations 2013, S.I. No. 213 of 2013:

> *"All licences shall expire in full at midnight on the tenth anniversary of the date on which the first such licence was granted under these Regulations and no licence shall be renewed nor shall any licence remain in effect following the expiry date and all rights and entitlements under all licences, including all spectrum rights of use, shall cease altogether as and from the expiry date."*

2.1 European Commission Decision (EU) 2021/1730

13 On the 28 September 2021, the European Commission published Commission Implementing Decision (EU) 2021/1730 on the harmonised use of the paired frequency bands 874.4-880.0 MHz and 919.4-925.0 MHz and of the unpaired frequency band 1 900-1 910 MHz for Railway Mobile Radio (the "Decision"). In summary, the Decision requires Member States to designate and make available on a non-exclusive basis the specified frequency bands (based on national demand) for RMR in accordance with the technical conditions set out in the Annex to the Decision.

14 ComReg observes that Irish Rail is regulated by the Commission for Railway Regulation ("CRR"). It is the only national rail network operator in the Republic of Ireland and for spectrum management purposes is often referred to as "heavy rail". It is important to note that it is separate and distinct from tram operations which utilises different radio spectrum for communication purposes and is often referred to as "light rail" . ComReg notes that Irish Rail is both the Infrastructure Manager who administrates the rail track network and the associated radio access network, and the Railway Undertaking which operates trains and thus uses the radio access network.

15 In that regard, Irish Rail requires a radio network to fulfil operational requirements of railway communications to support safety related applications. Examples of those applications are conventional voice services (driver-

controller calls, railway emergency calls, group calls, etc.) and data services for the European Rail Traffic Management System[9] ("ERTMS")/ European Train Control System[10] ("ETCS") signalling systems.

16 GSM-R is the current radiocommunication network technology for railways, which provides voice services (including emergency voice calls) and carries ETCS and other data services. However, in 2019 the ECC published ECC Report 294[11] which set out an assessment of the spectrum needs for future railway communications which would succeed GSM-R. That Report concluded that GSM-R and its successor technology will have to operate in parallel for a period of time. Therefore, in addition to the paired frequency band 874.4-880.0 MHz/919.4-925.0 MHz, Report 294 recommended that access to complementary spectrum (e.g. 10 MHz in 1 900-1 920 MHz) is a prerequisite for many countries in order to manage the migration with dual networks (GSM-R and FRMCS) operating in parallel over an approximate maximum 10-year period.

17 ComReg notes the 2024 announcement by Irish Rail of its continued investment in GSM-R and setting the foundation for FRMCS[12]. ComReg further notes that Irish Rail has stated that the continued deployment of GSM-R in a voice only configuration will be supported via a long-term service level agreement with its supplier until 2040. Irish Rail expects that a commercially available RMR solution will be available in the early 2030's, at which point it will develop an implementation strategy to have RMR deployed and operational before 2040.[13] Details of Irish Rail's expansion plans can be found in section 4.5 of the Regulatory Impact Assessment which follows.

2.2 Cross-Border Coordination

18 As it stands, RMR is not currently implemented for rail radiocommunications in Northern Ireland, and ComReg understands that there are no plans for it to be implemented in the near future. On this basis, there is no requirement for cross-border coordination through development of a Memorandum of Understanding ("MoU") in this regard at present. If, however, in the longer-term, there arises a

[9] ERTMS ("European Rail Traffic Management System") is a major industrial project being implemented by the European Union, a project which will make rail transport safer and more competitive. https://transport.ec.europa.eu/transport-modes/rail/ertms_en
[10] Applicative protocol for railway signalling and train protection to enable railway interoperability at European level. https://transport.ec.europa.eu/transport-modes/rail/ertms/what-ertms-and-how-does-it-work/etcs-levels-and-modes_en
[11] https://docdb.cept.org/download/1377
[12] Irish Rail and Kontron Secure Train Communication System's Future | Rail News (railtechnologymagazine.com)
[13] Ireland's National Implementation Plan – https://transport.ec.europa.eu/document/download/85edc270-7b50-4736-9eaa-cbdb41a7f48d_en?filename=NIP_ERTMS_2024_IE.pdf&prefLang=el

need for cross-border coordination (in anticipation of such systems being rolled out in Northern Ireland), the possibility of developing an appropriate MoU will then be considered further.

19 Regarding cross-border coordination of RMR, ComReg notes that the ECC has published the following documents:

(a) ECC Report 229 – Guidance for improving coexistence between GSM-R and MFCN in the 900 MHz band;[14]

(b) ECC Report 353 – Cross-border coordination and synchronisation for Railway Mobile Radio (RMR) networks in the 1900-1910 MHz TDD frequency band;[15]

(c) ECC Recommendation (05)08 – Frequency planning and cross-border coordination between GSM Land Mobile Systems (GSM 900, GSM 1800, and GSM-R);[16]

(d) ECC Recommendation (08)02 – Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands 900 MHz and 1800 MHz excluding GSM vs. GSM and for Railway Mobile Radio (RMR) in the 900 MHz frequency band excluding GSM-R vs. GSM-R;[17] and

(e) ECC Recommendation (23)01 – Cross-border coordination for Railway Mobile Radio (RMR) in the 1900-1910 MHz TDD frequency band.[18]

20 ComReg would take account of the guidance and recommendations set out in those documents to inform any future agreement on cross-border coordination.

[14] https://docdb.cept.org/download/1199
[15] https://docdb.cept.org/download/4365
[16] https://docdb.cept.org/download/3499
[17] https://docdb.cept.org/download/3507
[18] ECC Recommendation (23)01

3 Proposed Future Railway Mobile Radio Licensing Framework

3.1 Licence Expiry

21 As noted in Chapter 2, Irish Rail's GSM-R licence expires on 26 November 2025. ComReg observes that the existing GSM-R Regulations[19], at Regulation 8, state*: "All licences shall expire in full at midnight on the tenth anniversary of the date on which the first such licence was granted under these Regulations and no licence shall be renewed nor shall any licence remain in effect following the expiry date and all rights and entitlements under all licences, including all spectrum rights of use, shall cease altogether as and from the expiry date.".*

22 Therefore, in order to ensure the continued operation of Irish Rail's GSM-R service following the expiry of this licence ComReg is now seeking views from interested parties on a proposed new licensing regime for RMR.

3.2 Service Applications

23 The existing GSM-R system enables Irish Rail to provide a number of service applications, including emergency calls, voice and operational messages, functional registrations, driver communications, and safety calls. More information on these use types can be found in the Regulatory Impact Assessment which follows.

3.3 Spectrum for RMR

24 ComReg recalls that in 2013 it allocated the 876–880 MHz/921–925 MHz frequency range to GSM-R in Ireland. ComReg further observes that in 2015 Irish Rail was assigned 876.2–879.6 MHz/ 921.2–924.6 MHz for the roll out of its GSM-R network.

25 In order to support the rollout of successor technologies to GSM-R, and to enable the migration from GSM-R to RMR, which the EC Decision estimates to require a 10 year period, the EC Decision requires that, by 1 January 2022, Member States designate and make available on a non-exclusive basis the frequency bands 874.4–880.0 MHz, 919.4–925.0 MHz and 1900–1910 MHz (based on national demand) for RMR. In this regard ComReg updated its Radio

[19] The Wireless Telegraphy (GSM for Railway Licence) Regulations, 2013 (S.I. 213 of 2013).

Frequency Plan for Ireland[20] to allocate the aforementioned frequency range to RMR.

26 Notwithstanding the above, ComReg notes that Irish Rail has affirmed its requirement for GSM-R up until 2040 and "that a commercially available FRMCS solution will be available in the early 2030's at which point Iarnród Éireann will develop an implementation strategy to have FRMCS deployed RMR before 2040[21]". As such, and while ComReg has allocated the frequency ranges for RMR as required by the EC Decision, Irish Rail will need to demonstrate to ComReg's satisfaction, as Irelands Radio Spectrum Manager, that it actually has a requirement for additional spectrum prior to any further assignment.

27 The band plans for the paired and unpaired frequency bands as identified in the Decision, with adjacent services, are set out as follows in Figures 1 and 2.

Figure 1: RMR and adjacent spectrum services in 800/900 MHz

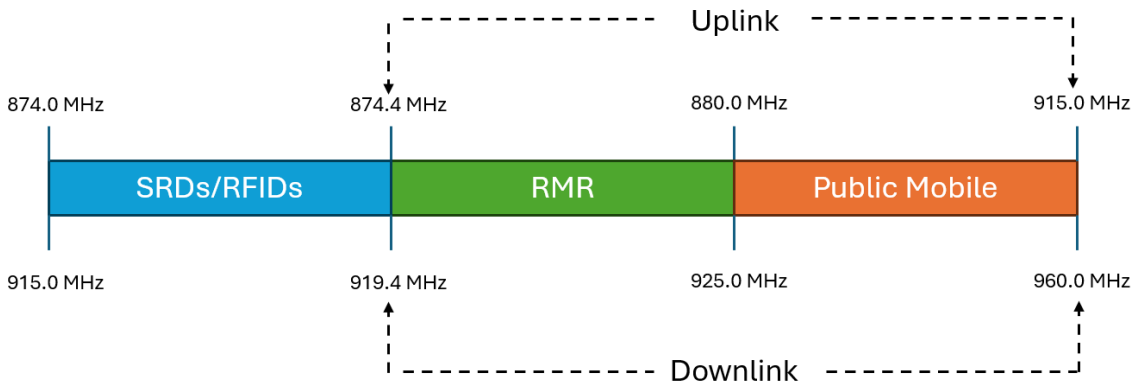


Figure 2: RMR and adjacent spectrum services[22] in 1800/1900 MHz

28 In order to ensure the efficient use of the radio spectrum, ComReg intends to

[20] Radio Frequency plan for Ireland | Commission for Communications Regulation

[21] 85edc270-7b50-4736-9eaa-cbdb41a7f48d_en

[22] UAS means unmanned aircraft systems

only assign the quantum of spectrum which an applicant can justify for the efficient operation of their railway network.

3.4 Licence Type

29 Ireland's national rail network spans the length and breadth of the country. In order to ensure that the existing GSM-R network is available across the entirety of the rail network, and so that Irish Rail can appropriately plan its assigned frequencies, it was appropriate for ComReg to grant a national licence to Irish Rail. It is evident that in order to ensure the continued undisrupted use of the existing GSM-R network and any future technological upgrades that any future licence for RMR would also need to be national in nature.

30 As such, ComReg proposes that licences for RMR granted under any new licencing framework would be national in nature. This licence type would allow for the rail network to expand and provide maximum flexibility to Irish Rail.

3.5 Licence Duration

31 ComReg notes that Regulation 31(1) of the 2022 Code Regulations provides that rights of use for radio spectrum shall be in force for such period as ComReg considers appropriate in light of the objectives pursued in accordance with Regulation 36(2) and (3), taking due account of the need to ensure competition, as well as, in particular, effective and efficient use of radio spectrum, and to promote innovation and efficient investments, including by allowing for an appropriate period for investment amortisation.

32 In that regard, ComReg notes that Regulation 36 (2) and (3) of the 2022 Code provides for a duration of 20 years[23] to ensure regulatory predictability regarding conditions for investment in infrastructure for "*wireless broadband electronic communications services ("wireless broadband services")*". However, RMR is not a wireless broadband electronic communications service[24] as defined in S.I. No. 444/2022 - European Union (Electronic Communications Code) Regulations 2022. Therefore, considerations in relation to 36 (2) and (3) and related subsections (4) – (8) do not apply in determining an appropriate duration in this instance.

33 Therefore, in line with Regulation 31 (1), and noting that Irish Rail is the only potential licensee, ComReg's assessment on an appropriate duration will focus

[23] The minimum duration set out in Regulation 31 (3) is 15 years which can be extended to 20 years under the conditions laid down in paragraphs (4) to (8).
[24] Electronic communications service" means a service normally provided for remuneration via electronic communications networks, which encompasses, with the exception of services providing, or exercising editorial control over, content transmitted using electronic communications networks and services.

on the need to ensure effective and efficient use of the radio spectrum, and to promote innovation and efficient investments.

34 ComReg notes that RMR is a dedicated radio communication system for voice and data services supporting railway operations. It comprises two radio systems: GSM-R and FRMCS that may be implemented both at the same time or each of them independently. Further, Decision 2021/1730 clearly envisages making spectrum available to allow for the operation of GSM-R and the introduction of FRMCS[25].

35 Therefore, in determining an appropriate licence duration, ComReg is of the preliminary view that it should consider the continued operation of GSM-R **and** the introduction of FRMCS to ensure effective and efficient use of the radio spectrum and promote innovation and efficient investments. With that in mind, ComReg first notes the following relevant background information before considering an appropriate licence duration for RMR.

- The implementation of GSM-R across the network has yet to be completed and is being conducted in several phases. GSM-R is due to be rolled out to replace the analogue radio network by the end of 2026.[26]
- Irish Rail has a Long-Term Support (LTS) contract for the GSM-R Network in place until the end of 2040[27] after which GSM-R will be decommissioned.
- Decision 2021/1730 makes spectrum available to enable parallel operation of GSM-R and its successor during an approximately **10-year migration phase** from GSM-R to FRMCS[28].
- Irish Rail intends to begin market engagement for an FRMCS solution in 2032 with an 8 year roll out[29] and commissioning to coincide with the expiration of the LTS support contract.[30]

36 ComReg now considers various licence durations given the above information.

10 years (Licence would expire in 2035)

37 Under the current framework, a GSM-R licence would be a national licence with

[25] See Recital 2 -5 of Decision 2021/1730
[26] Ireland Rail National Implementation Plan, June 2024, Page 57 85edc270-7b50-4736-9eaa-cbdb41a7f48d_en
[27] Irish Rail response to ComReg Information Request.
[28] See Recital 4 of Decision 2021/1730.
[29] ComReg also notes that the transition to FRMCS over the next decade is not unique to Irish Rail. For example, the European Union's Agency for Railways previously noted that "*The Railway sector expects that the full migration from GSM-R to the successor system may* ***take at least 8 to 10 years****, depending on the size of the network and the impacted rolling stock. Hence, replacement of GSM-R should start* ***mid next decade*** *in order to prevent risks for the continuity of GSM-R based communication*" [Emphasis added].
[30] Irish Rail response to ComReg Information Request.

a maximum duration of 10 years and would then expire. ComReg is of the preliminary view that a licence duration of 10 years for the new RMR framework is unlikely to be appropriate because any new licence would expire in advance of 2040 when GSM-R is set to be decommissioned. Furthermore, it would provide no incentives for Irish Rail to commence investments in innovative and enhanced infrastructures such as FRMCS because such investments are currently only due to commence shortly before the expiry of any ten-year licence in 2035 (i.e. 2032 at the earliest).

15 years (Licence would expire in 2040)

38 ComReg notes that a minimum licence duration of 15 years would be required to provide GSM-R connectivity in the period up until 2040. A 15-year licence duration would allow for the completion of the GSM-R rollout in 2026 and its subsequent decommissioning in 2040. However, in setting a licence duration, ComReg also needs to consider the parallel introduction of FRMCS, and whether a licence that would expire in 2040 would provide sufficient predictability and certainty for FRMCS investments to be made in advance of 2040.

39 Irish Rail currently plans for FRMCS to be introduced and coexist with GSM-R in the 8 years up to 2040. This timeline was set to coincide with the expiry of Irish Rail LTS contract for GSM-R in 2040. A 15-year licence duration would appear to align with Irish Rail's current plans for the introduction of FRMCS over this period. However, it may be prudent for ComReg to consider the ten-year migration period noted in Decision 2021/1730 so as to provide sufficient flexibility for Irish Rail to complete its migration and to ensure the effective and efficient use of the radio spectrum.

40 This is particularly relevant in Ireland given the nature of its rail network relative to its European counterparts. For example, the national Implementation Plan provided by Irish Rail to the European Commission acknowledges the singular nature of the Irish rail network (isolated from the UK and the continent), the different track gauge and the low population in the country resulting in fewer train services[31]. Indeed, the longer migration provided by the Decision may well be required given that Irish Rail itself has noted that "*it is not historically an early technology adopter*"[32]. Further, if commencement only began in 2035, there would only be a 5-year migration period, or the decommissioning of GSM-R would need to be delayed beyond 2040 (and the expiry of a 15-year licence).

41 ComReg additionally notes that aligning its assessment with information provided in European Commission Decisions (i.e. a 10-year migration period)

[31] Ireland - European Commission
[32] Irish Rail response to ComReg Information Request.

better promotes regulatory predictability in its decision making.

42 Therefore, ComReg is of the preliminary view that a licence duration of 15 years is unlikely to be appropriate.

20 years (Licence would expire in 2045)

43 A 20-year term would provide additional flexibility by providing a licence that would expire in 2045. This would allow for the full rollout and subsequent decommissioning of GSM-R, and allow sufficient time for the introduction of FRMCS to commence and coexist with GSM-R. In particular, it would allow for the commencement of FRMCS up to 2035 and still be in line with the 10-year migration phase from GSM-R to FRMCS referred to in Decision 2021/1730.

44 ComReg notes that a licence duration of 18 years would also fit with the migration period referred to in Decision 2021/1730 and a commencement of FRMCS in 2032, however it would provide no flexibility for a later commencement for FRMCS, which would seem prudent given that Irish Rail is not an early adopter and Ireland is already likely to have a later rollout than the rest of Europe given the scale of its rail network. Alternatively, a licence duration of 20 years allows for FRMCS to be commenced between 2032 - 2035 while still providing a 10-year migration envisaged by Decision 2021/1730.

45 Therefore, to better provide for the efficient rollout of new and enhanced infrastructure, ComReg is of the preliminary view that a licence duration of 20 years is appropriate for RMR.

3.6 Technical Conditions

46 The proposed RMR technical conditions derive from those laid out in the EC Decision which were informed by CEPT Reports 74[33] and 76[34]. Those reports are based on feasibility studies, and assess the required amount of spectrum, identify the appropriate spectrum bands, and propose harmonised technical conditions.[35]

47 CEPT Report 74 concluded, amongst other things, that:

(a) the 874.4-880 MHz / 919.4-925 MHz frequency band is feasible for RMR, provided that:

(i) RMR base stations ensure coexistence with Mobile/Fixed Communications Networks (“MFCN”) base stations receiving

[33] https://docdb.cept.org/download/132
[34] https://docdb.cept.org/download/137
[35] Implementing decision - 2021/1730 - EN - EUR-Lex

below 915 MHz. The statistical approach, as described in ECC Report 318[36], relying on existing GSM-R and MFCN deployment data, was chosen to define the Block Edge Mask (BEM) which enables uncoordinated deployments, while ensuring an acceptably low occurrence probability of residual interference cases to be addressed at national level when interference occurs.

(ii) RMR high-power cab-radios transmitting up to 31 dBm (output power) in 874.4-880.0 MHz activate uplink power control, and comply with an ACLR[37] of 37 dB and 3GPP LTE/NR spectrum emission mask.

(iii) RMR cab-radios are robust against adjacent emissions, including MFCN base stations above 925 MHz, aerial user equipment ("UE") using MFCNs below 915 MHz and short range devices ("SRD") below 919.4 MHz.

(iv) RMR base stations are robust against adjacent emissions, including SRD below 874.4 MHz.

(b) part of the 1900-1920 frequency band is feasible for RMR, provided that:

(i) RMR base stations ensure coexistence with MFCN base stations receiving above 1920 MHz while ensuring an efficient use of spectrum. For uncoordinated deployment, the BEM for RMR base stations assumes that MFCN base stations have enhanced selectivity compared to current Harmonised European Standards. This would facilitate coexistence with RMR base stations transmitting up to 65 dBm e.i.r.p. with the aim of having a future-proof regulation and allowing macro coverage.

(ii) Current MFCN base stations located near an RMR radio site are adapted, in such a way that they do not suffer interference from RMR. Potential mitigation techniques could include the upgrade of the MFCN base station selectivity or on a case-by-case basis adjustment of antenna directivity, azimuth, tilt, etc. of the RMR and/or MFCN base stations.

(iii) FRMCS high-power cab-radios transmitting up to 31 dBm (output power) activate uplink power control, and that RMR cab-

[36] https://docdb.cept.org/download/1433
[37] "Adjacent Channel Leakage power Ratio" or "ACLR" is the ratio of the transmitted power on the assigned channel to the power received in the adjacent radio channel after a receive filter.

radios are compliant with an ACLR of 37 dB and 3GPP LTE/NR spectrum emission mask.

(iv) RMR cab-radios are robust against adjacent emissions, including ECS base stations below 1880 MHz and aerial UE using ECS above 1920 MHz.

(v) RMR base stations are robust against adjacent emissions, including ECS BS below 1880 MHz.

(vi) the Dynamic Channel Selection (DCS) is implemented in DECT (1880-1900 MHz) to prevent interference.

48 In response to task 5 of the Mandate to develop EU-harmonised technical conditions[38], and having regard to CEPT Report 74, CEPT Report 76 sets out:

(a) harmonised technical conditions for GSM-R in 874.4-880.0 MHz / 919.4-925.0 MHz in section 3.1:

(b) harmonised least restrictive technical conditions for wideband RMR in 874.4-880.0 MHz / 919.4-925.0 MHz in section 3.2; and

(c) harmonised least restrictive technical conditions for wideband RMR (FRMCS) in 1900-1910 MHz in section 4.1.

49 These technical conditions which are specified in the Decision and identified in CEPT Report 76 are included in the draft regulations, as set out in Annex 3 of this document and provide for the use of:

(a) GSM-R in the 874.4-880.0 MHz and 919.4-925.0 MHz bands;

(b) A single wideband RMR Carrier in the 874.4-880.0 MHz and 919.4-925.0 MHz bands; and

(c) wideband RMR in the 1900-1910 MHz (TDD) band.

50 ComReg notes that following the publication of a revised version of ECC Decision (20)02 on 28 June 2024[39] to include harmonised technical conditions for spectrum use by both wideband RMR transmitters and receivers. Following that publication, the EC issued a further mandate to CEPT to develop harmonised technical conditions for introducing channels larger than 1.4 MHz, but smaller than 5 MHz for the use of 5G-NR and enable narrowband use

[38] ECC Reports 318, 313 and 314 formed the basis of the technical conditions set out in CEPT Report 76.
[39] ECC Decision (20)02 – Harmonised use of the paired frequency bands 874.4-880.0 MHz and 919.4-925.0 MHz and of the unpaired frequency band 1900-1910 MHz for Railway Mobile Radio https://docdb.cept.org/download/4521

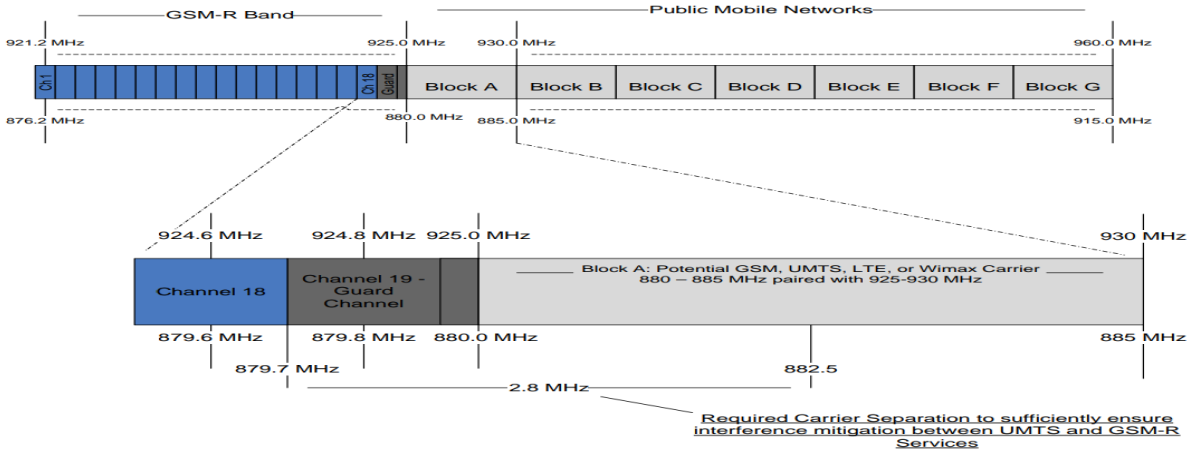
cases other than NB-IoT in the 900 MHz frequency bands for RMR. CEPT has already completed the required studies and are reflected within Annex 2 of ECC Decision (20)02.[40]

51 ComReg proposes updating the technical conditions for RMR in the future following the publication of any future amendment (or replacement) of the Decision.

3.7 Coexistence with adjacent services

52 In 2011, ComReg specified a guard band of 300 kHz between the GSM-R and MFCN spectrum bands to take account of the 2.8 MHz carrier separation recommended in ECC Report 146 to sufficiently mitigate harmful interference between GSM Multi-Carrier Base Transceiver Stations ("MBTS") and GSM-R downlinks.[41] ComReg noted that the implementation of a 2.8 MHz carrier separation would reduce the potential for interference to occur between GSM-R and any prospective UMTS/GSM services in the adjacent MFCN frequency band.

Figure 2 Carrier Separation Between GSM-R and MFCNs



53 ComReg notes that CEPT Report 80[42] identifies least restrictive harmonised technical conditions suitable for 5G NR terrestrial wireless systems (and, when applicable, Adaptive Antenna System ("AAS") technologies) to ensure appropriate compatibility with current systems and protection of adjacent services, based on existing CEPT Reports and ECC Reports.

[40] https://ec.europa.eu/newsroom/dae/redirection/document/107680
[41] See section 2.4.2 of ComReg Document 11/90 – https://www.comreg.ie/media/dlm_uploads/2015/12/ComReg1190.pdf
[42] CEPT Report 80 – Channelling arrangements and least restrictive technical conditions suitable for ECS including 5G terrestrial wireless systems in the 900 MHz and 1800 MHz frequency bands, in compliance with the principles of technology and service neutrality.

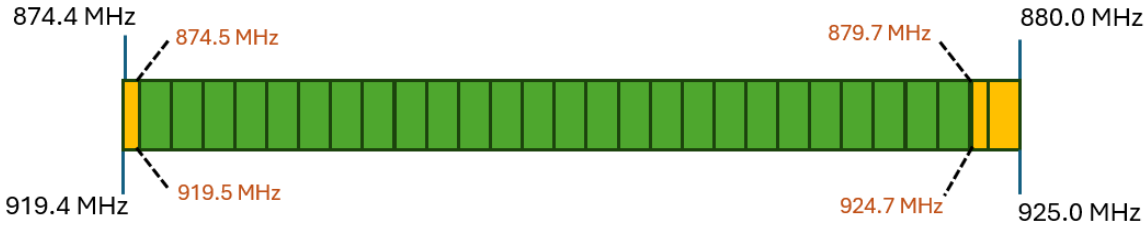
54 ComReg further notes that CEPT Report 80 concludes that coexistence between RMR (wideband ("WB")[43] and narrowband ("NB")[44]) and MFCN (WB and NB) non-AAS systems complying with the technology neutral least restrictive technical conditions (defined in section 3.4 of CEPT Report 80) is ensured as long as:

(a) A 200 kHz frequency separation is implemented between channel edges of networks adjacent in frequency in the following cases: RMR NB vs. MFCN WB and RMR WB vs MFCN NB; and

(b) No frequency separation is required between RMR WB and MFCN WB systems.

55 In this regard, to ensure coexistence with adjacent MFCN services, ComReg proposes to retain the existing 300 kHz guard band (879.7-880.0/924.7-925.0 MHz) for GSM-R and implement a band plan which would contain 26 x 200 kHz channels between 874.5-879.7/919.5-924.7 MHz, see Figure 3. The 300 kHz guard band would continue to apply while GSM narrowband technology is in use by Eir in in the 880-890 MHz/925-935 MHz band and/or GSM-R is in use by Irish rail as both GSM and GSM-R will continue to use 200 kHz channels.

Figure 3: Proposed GSM-R 200 kHz channel band plan in 900 MHz



56 ComReg notes that future RMR could potentially utilise 1.4 MHz, 5 MHz and 5.6 MHz channels in the 874.4-880.0 MHz and 919.4-925.0 MHz band. While RMR in the 1900-1910 MHz band could potentially utilise a maximum channel size of 10 MHz. However, noting that Eir has GSM technology deployed in the 900 MHz, ComReg proposes to also include a 300 kHz guard band for RMR WB deployments in the 874.4-880.0 MHz and 919.4-925.0 MHz band, and implement:

(a) a 1.4 MHz channel band plan which would contain three x 1.4 MHz channels and one 1.1 MHz channel between 874.4-879.7/919.4-924.7

[43] Wideband means frequency block sizes larger than 200 kHz.
[44] Narrowband means frequency block sizes of 200 kHz.

MHz band to ensure coexistence with adjacent services, see figure 4; and

(b) a 5 MHz channel band plan which would contain one 5 MHz channel, one 200 kHz channel, and one 100 kHz channel between 874.4-879.7/919.4-924.7 MHz band to ensure coexistence with adjacent services, see figure 5.

Figure 4: Proposed RMR 1.4 MHz channel band plan in 900 MHz

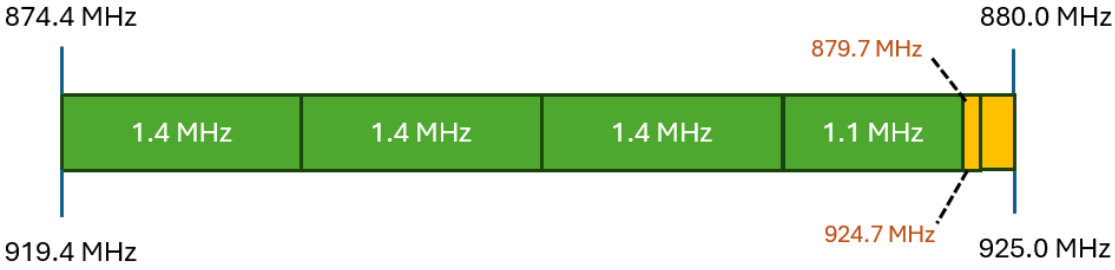


Figure 5: Proposed RMR 5 MHz channel band plan in 900 MHz

57 ComReg notes that a 300 kHz guard band would not allow for the use of a 5.6 MHz channel for RMR, however it may be possible to do so in the future if or when Eir decommissions its GSM service in the 880-890 MHz/925-935 MHz band.

58 ComReg proposes to 10 MHz band plan in 1 MHz channels for RMR in the 1900-1910 MHz band, see figure 6.

Figure 6: Proposed RMR 1 MHz TDD channel band plan in 1900 MHz

59 Finally, ComReg notes that the proposed band plans are for use in scenarios where the adjacent services are operating in an uncoordinated manner, and a guard band may not be required if the operation of those systems are

coordinated and agreed by the relevant licensees. Section 3.4.5.3 of CEPT Report 80 provides a toolbox for implementing the BEM and the required frequency separation at national level.

60 ComReg also notes that ECC Report 229[45] proposes a systematic approach based on a coordination/cooperation process and guidelines for the dialogue between RMR and Mobile Network Operators ("MNOs"). Therefore, ComReg is of the view that the general principles regarding site planning, site coordination, and interference resolution as set out in Sections 7.2 to 7.4 of ECC Report 229 should be applied by the relevant licensees to mitigate any potential inference between services.

[45] https://docdb.cept.org/download/1199

4 Draft Regulatory Instrument Assessment

4.1 Introduction

61 RMR is a dedicated radio communication system for voice and data services supporting railway operations. It comprises two radio systems: GSM-R (Global System for Mobile Communications - Railways) and FRMCS (Future Railway Mobile Communication System) that may be implemented both at the same time or each of them independently.

62 As described in Chapter 2, the Decision (EU) 2021/1730 requires Member States to designate and make available on a non-exclusive basis the paired frequency bands 874.4-880.0 MHz, 919.4-925.0 MHz (the "900 MHz Band") and 1 900 - 1 910 MHz (the "1.9 GHz Band") for RMR (based on national demand).

63 In that regard, this chapter sets out ComReg's draft Regulatory Impact Assessment ("RIA") on the procedure for setting spectrum fees[46] for RMR by outlining the relevant policy issues and assessing the various regulatory options to determine ComReg's preferred option, having regard to the impact on stakeholders, competition and consumers.

64 While assessing the various regulatory options, ComReg will do so in line with relevant legal obligations including for instance Regulation 24 of the European Union (Electronic Communications Code) Regulations 2022[47], which requires that any regulatory option in relation to fees chosen by ComReg is objectively justified, transparent, non-discriminatory and proportionate.

4.2 RIA Framework

65 In general terms, a RIA is an analysis of the likely effect of a proposed new regulation or regulatory change, and indeed, of whether regulation is necessary at all. A RIA should help identify the most effective and least burdensome regulatory option and should seek to establish whether a proposed regulation or regulatory change is likely to achieve the desired objectives, having

[46] ComReg shared a questionnaire with the IRG, seeking information on their current spectrum allocation for railway, and the means by which their spectrum fees are calculated. ComReg received 14 responses, the respondents were Croatia, Cyprus, Czech Republic, France, Germany, Italy, Poland, Portugal, Serbia, Slovak Republic, Slovenia, Spain, Switzerland and the United Kingdom.
[47] Regulation 24 of S.I. No. 444 of 2022.

considered relevant alternatives and the impacts on stakeholders.

66 In conducting a RIA, the aim is to ensure that all proposed measures are appropriate, effective, proportionate and justified. A RIA should be carried out as early as possible in the assessment of regulatory options, where appropriate and feasible. The consideration of the regulatory impact facilitates the discussion of options, and a RIA should therefore be integrated into the overall preliminary analysis. This is the approach which ComReg follows in this Consultation and this draft RIA should be read in conjunction with the overall Consultation. The RIA will be finalised in the final Decision arising from this Consultation, having considered responses to this Consultation.

4.3 Structure for the RIA

67 As set out in ComReg's RIA Guidelines[48], there are five steps in a RIA. These are:

- **Step 1**: Identify the policy issues and identify the objectives.
- **Step 2**: Identify and describe the regulatory options.
- **Step 3**: Determine the impacts on stakeholders.
- **Step 4**: Determine the impact on competition.
- **Step 5**: Assess the impacts and choose the best option.

68 In the following sections, ComReg identifies the relevant stakeholder groups, specific policy issues to be addressed and relevant objectives (i.e. Step 1 of the RIA process). This is followed by the identification of the policy issues that need to be addressed.

69 ComReg then considers these policy issues in accordance with the four remaining steps of ComReg's RIA process.

Identification of stakeholders and approach to Steps 3 and 4

70 The focus of Step 3 is to assess the impact of the proposed regulatory options available to ComReg on stakeholders. A precursor to the subsequent steps in the RIA, therefore, is to identify the relevant stakeholders. Stakeholders consist of two main groups:

- Consumers; and

[48] See Document 07/56a – Guidelines on ComReg's approach to Regulatory Impact Assessment – 2007.

- Industry stakeholders

71 There are a small number of industry stakeholders in relation to the matters considered in this chapter: These are:

- The current GSM-R license holder, namely Irish Rail; and
- Potential future users of the spectrum (e.g. Mobile Network Operators (MNOs)).

72 Prior to receiving submissions on ComReg's various proposals contained in this consultation, ComReg has, in the following analysis, taken a reasonable and pragmatic approach to considering the likely impact of each option on the various stakeholders having regard to its experience and expertise, and the information provided by Irish Rail in advance of this consultation.

73 The focus of Step 4 is to assess the impact on competition of the proposed regulatory options available to ComReg. In that regard, ComReg notes that it has various statutory objectives, regulatory principles and duties which are relevant to the issue of competition.

74 Of themselves, the RIA Guidelines and the RIA Ministerial Policy Direction[49] provide little guidance on how much weight should be given to the positions and views of each stakeholder group (Step 3), or the impact on competition (Step 4). Accordingly, ComReg has been guided by its statutory objectives which it is obliged to seek to achieve when exercising its functions. ComReg's statutory objectives in managing the radio frequency spectrum, as outlined in Annex 1, include:

- Under Section 12 of the Act, to promote competition[50], to contribute to the development of the internal market[51] and to promote the interests of users within the Community[52].
- Regulation 24 of S.I. No. 444 of 2022[53] permits ComReg to impose fees for rights of use, which reflect the need to ensure the optimal use of the radio frequency spectrum; and
- Regulation 4(5) (d) of S.I. No. 444 of 2022 which requires ComReg to promote efficient investment and innovation in new and enhanced

[49] Ministerial Direction dated June 2009.
[50] Section 12 (1)(a)(i) of the 2002 Act.
[51] Section 12 (1)(a)(ii) of the 2002 Act.
[52] Section 12(1)(a)(iii) of the 2002 Act.
[53] Regulation 24 of S.I. No. 444 of 2022.

infrastructure[54];

75 In this document, ComReg has adopted the following structure in relation to Step 3 and Step 4 – the impact on industry stakeholders is considered first, followed by the impact on competition, followed by the impact on consumers. The order of this assessment does not reflect any assessment of the relative importance of these issues, but rather reflects a logical progression. For example, a measure that safeguards and promotes competition should also, in turn, impact positively on consumers. In that regard, the assessment of the impact on consumers draws substantially upon the assessment carried out in respect of the impact on competition.

4.4 Step 1: Identify the policy issues & the objectives

Policy Issues

76 Regulation 24 of the European Union (Electronic Communications Code) Regulations 2022 permits ComReg to impose fees for rights of use that reflect the need to ensure the optimal use of the radio frequency spectrum. In addition, ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose.

77 The European Commission Decision (EU) 2021/1730 requires the 900 MHz and 1.9 GHz Bands be made available for RMR on a non-exclusive basis in accordance with the technical conditions set out in the Annex to the Decision. While the Decision stipulates that these rights of use shall be made available for RMR, it is silent on which operator or how many operators these rights of use should be made available to. In that regard, it is first useful to set out which entity(s) are permitted to apply for RMR rights of use.

78 In Ireland, Iarnród Éireann (t/a Irish Rail) was set up pursuant to Sections 6 and 7 of the Transport (Re-organisation of Córas Iompair Éireann) Act 1986. It was incorporated on January 20th 1987 and commenced trading on 2nd February 1987. It is a wholly owned subsidiary of Córas Iompair Éireann and the principal objective of Iarnród Éireann as outlined by the Act "*shall be stated in its memorandum of association to be to provide, within the State and between the State and places outside the State, a railway service and a road freight service and for those purposes to exercise functions in that behalf conferred on the Board by the Transport Act of 1950 or any other enactment*". Therefore, ComReg is of the preliminary view that Irish Rail is the only entity in the State that can be assigned rights of use in the 900 MHz and 1.9 GHz Bands.

[54] Regulation 4(5)(d) of S.I. No. 444 of 2022, the European Union (Electronic Communications Code) Regulations 2022.

79 Given its obligations to provide for the optimal use, ComReg has previously sought to set licence fees based on opportunity cost[55], which is typically supportive of efficient spectrum assignment and use. Opportunity cost prices can usually be expected to result from a competitive market-based award process, such as a well-designed auction[56]. However, in this case, where rights of use have already been allocated by the European Commission for RMR, and there is only one RMR operator in Ireland, an auction would clearly be impractical. Therefore, absent the option of using a market mechanism, ComReg must establish an approach for establishing the fees for RMR that provides for the optimal use of the spectrum as required under Regulation 24.

80 ComReg notes that setting fees for radio spectrum rights of use where the assignment has already been decided is not straightforward, and could lead to inefficient use and/or distortions to competition, since:

- prices that are set too low might result in the inefficient use of the radio spectrum; or
- prices that are set too high could lead to scarce spectrum being unused, or under-used, with an operator choosing not to deploy RMR or deploy RMR less extensively because fees are too high.

81 In outlining a procedure for assessing the impacts of setting spectrum fees which reflects its relevant statutory functions, duties and objectives, ComReg does not wish to adversely affect the extent to which RMR may be precluded or would otherwise be provided for, particularly in light of the assignment Decision already made by the European Commission. Clearly, the European Commission's Decision envisages a situation that the RMR spectrum would be used where national demand exists.

82 Therefore, the main policy issue assessed in this draft RIA is to determine the methodology for setting spectrum fees (where that spectrum has already been assigned through an administrative allocation by the European Commission) that must reflect the need to ensure the optimal use of the radio spectrum assigned, and must also be objectively justified, transparent, non-discriminatory and proportionate.

[55] See ComReg Document 17/19, Document 23/61, Document 22/56

[56] This can help to (i) establish the efficient assignment of spectrum amongst bidders, based on bidders' willingness to pay (which can be expected to represent the economic value they are able to generate) and (ii) establish the opportunity costs of the assignment, setting suitable spectrum usage fees at a level that represents market value (and could be considered fair), and encourages the winning bidder(s) to utilise the spectrum more efficiently.

Objectives

83 ComReg's current approach to setting spectrum fees is set out in Section 7.6 of its Radio Spectrum Management Strategy Statement[57] and, in particular, that:

- Spectrum fees imposed for rights of use reflect the need to ensure the optimal use of the radio frequency spectrum; and
- Any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose.

84 In addition, the focus of this draft RIA is to assess the impact of the proposed measure(s) (see regulatory options below) on stakeholders, competition, and consumers. ComReg can then identify and implement the most appropriate and effective means by which to set spectrum fees for the 900 MHz and 1.9 GHz Bands

85 While setting these fees, ComReg also seeks in this draft RIA to achieve its core statutory objectives under Section 12 of the 2002 Act, such as promoting competition by, amongst other things;

- Ensuring that users derive maximum benefit in terms of choice, price and quality;
- Encouraging efficient use and ensuring effective management of radio frequencies;
- Ensuring that there is no distortion or restriction of competition in the electronic communications sector;
- Contributing to the development of the internal market; and
- Promoting the interest of EU citizens.

86 ComReg also notes that, in achieving its objectives, its ultimate aim is to choose regulatory measures which maximise the benefits for consumers in terms of choice and quality.

87 Having identified the policy issues and objectives, ComReg now identifies the regulatory options to be assessed over the remainder of this draft RIA.

4.5 Step 2: Identify and describe the regulatory options

88 The current GSM-R licensing framework has been in place since 2013 and has enabled ComReg to effectively assign GSM-R rights of use in Ireland. With that

[57] Radio Spectrum Management Strategy Statement 2022 to 2024, ComReg Document 21/136

in mind, ComReg will evaluate the existing GSM-R fees approach as an option, given its utility to date, and also to fully understand the impact of any change to any alternative option(s). Therefore, ComReg notes that **Option 1** is to maintain the status quo and extend the use of the existing GSM-R fees regime over the proposed 20 year licence duration.

89 Readers are referred to ComReg Document 13/115[58] for full details on the current fees for GSM-R where the annual licence fees payable on the grant and each anniversary of the date of first granting the licence are €50,400 per 2 × 1 MHz of spectrum (or per fraction of a year on a daily pro rata daily basis). Currently, the fee for each 2 × 1 MHz of spectrum amounts to €60,402 which accounts for annual CPI adjustments over the past 10 years.

90 In relation to other potential options, there are various methods of determining spectrum fees and some approaches (or a combination of approaches) are likely to be more suitable than others. ComReg does not favour any one process for assigning new rights of use of spectrum as a matter of principle; it decides the most appropriate process in each individual case. Each approach will typically have its advantages and disadvantages, and one process may, on balance, be found to be the most suitable in light of the particular circumstances, including the characteristics of the spectrum to be assigned, the types of rights of use, and the anticipated demand for the spectrum.

91 At a high-level, and for the purpose of this consultation, there are broadly two approaches to setting spectrum fees in an administrative setting:

- **Opportunity cost based**: The opportunity cost of the radio spectrum is the value associated with the best alternative use that is denied by granting access to one user rather than to the alternative. As previously noted, a market mechanism cannot be used to determine fees based on opportunity cost.

- **Administrative cost recovery**: a minimum requirement for fees is that ComReg recovers its administrative costs associated with managing spectrum licences. The cost recovery methodology is an administrative based approach that sets total spectrum fees equal to the overall spectrum management costs.[59]

Opportunity Cost Pricing

[58] Guidelines: GSM for Railway License Guidelines, ComReg Document 13/115.
[59] A typical formula for such an approach would be to calculate fees based on the estimated cost of the licensing regime divided by the number of licenses. For example: Spectrum Fee = Spectrum Management Costs / Amount of total Spectrum Assigned to the User.

92 ComReg's approach to setting administrative spectrum fees based on opportunity cost is set out in various decisions, which followed consultation with industry[606162]. An important consideration in setting spectrum fees for RMR is whether an opportunity cost methodology is appropriate, and, if so, how this approach is implemented and what alternative uses should be considered. A fee based on an estimate of the opportunity cost of spectrum is typically applied on the value per MHz of spectrum used. In relation to Opportunity Cost Pricing, there are two approaches to consider.

- **Long-run Opportunity Cost:** is an opportunity cost approach where all alternative uses that exist in the long run are considered in determining appropriate fees. Fees for use of the spectrum would be set with long-term spectrum policy objectives in mind. Using this approach, it is relevant to consider the provision of long-run incentives for the efficient use and allocation of this spectrum (i.e. beyond the term of the licences).

- **Short-run Opportunity Cost:** A shorter-run opportunity cost approach only considers uses that exist in the short run over the duration of the licence. In cases where there is no short run opportunity cost, the fees could be set to recover costs. Cost based fees can take the form of simple charges that are set at a level sufficient to recover the costs of spectrum management.

93 Given that Irish Rail is the only rail operator in Ireland – a short run opportunity cost would correspond to the administrative cost recovery approach referred to above (i.e. the opportunity cost would be zero).

94 ComReg is of the preliminary view that there is a need to consider the long run opportunity cost of the spectrum because the rights of use in question could be used by alternative users in the long run (i.e. beyond the duration of current rights of use). This is particularly the case for this consultation, where alternative uses are adjacent to RMR rights of use, and where those alternative uses could be used to deliver RMR services in the future. For example:

- Base stations which are expected to operate in 1900-1910 MHz are 10 MHz away from the lower edge of the 3GPP UL band 1 (i.e. 2.1 GHz Band).

[60] Mobile Satellite Services with Complementary Ground Component Authorisation Regime: Response to ComReg Consultation Document 17/19 and Final Decision, ComReg Document 17/97.
[61] Review of the Fixed Radio Links Licensing Regime: Response to Consultation and Decision, ComReg Document 23/61.
[62] Review of the Satellite Earth Station Licensing Regime: Response to Consultation and Decision, ComReg Document 23/96.

- The 876-880 and 921-925 MHz frequencies made available for RMR are immediately adjacent to the liberalised use 900 MHz Band (i.e., 880-915MHz - 925-960MHz).

95 Furthermore, CEPT Report 74 considered the technical feasibility of using commercial mobile networks, taking into account the wireless coverage and reliability needs of the railway system. It also confirmed the possibility of using commercial mobile networks for all relevant railway applications, including critical railway applications under the condition that the relevant parts of the commercial mobile network fulfil the service requirements of railway systems[63].

96 Therefore, not only could some or all of the RMR spectrum be made available for Mobile/Fixed Communication Networks in the future, it could also potentially be suitable for providing RMR services altogether. It is therefore important that the spectrum fees for RMR recognise this potentiality, noting that although there are currently no alternative users of the RMR spectrum, other than Irish Rail, in the long run these licences will terminate, and the spectrum will again become available for re-allocation[64]. Difficulty in predicting what may happen at this stage lends importance to providing appropriate long-run incentives to facilitate efficient allocation, and respecting the broad principles that ComReg applies to spectrum in general.

97 By contrast, a short run opportunity cost approach would not be appropriate because the Decision allocated the spectrum rights of use for RMR, and there is only one rail operator in Ireland. Under such an approach, Irish Rail have little incentive to consider that the frequencies administratively assigned to them might be more efficiently used by other users in the long run and beyond the duration of the licence. Absent appropriate fees, Irish Rail could be assigned additional spectrum (e.g. 1.9 GHz) it would not require if it used its existing rights of use more efficiently.

98 RMR fees are likely to have a limited impact on the efficiency of use of RMR spectrum in the short run. However, this does not detract from the fact that fees for use of the spectrum should be set with long-term spectrum policy objectives in mind. Although pan-EU licencing for RMR might foreclose alternative uses of the spectrum in the short-run, spectrum pricing should provide appropriate signals for efficient spectrum use over longer horizons, anticipating eventual re-licensing and re-planning of spectrum. Therefore, ComReg is of the preliminary view that a short-term opportunity cost approach would not be an appropriate regulatory option.

[63] Section 7.4 – CEPT Report 74

[64] There remains a possibility that a different allocation of frequencies could be made in the future (particularly in the long run) or that rail connectivity would be provided by commercial networks (as referred to in CEPT Report 76).

99 Given the above, ComReg considers that the two regulatory options available to it are as follows.

- **Option 1**: RMR Fees would be the same as existing GSM-R fees indexed to CPI. This option would result in Irish Rail paying the same fee per MHz of spectrum that are currently paid for its GSM-R rights of use.
- **Option 2:** RMR Fees based on Long-Run Opportunity Cost. This option considers a broader notion of opportunity cost which includes alternative uses of the radio spectrum not considered in the European Commission's Decision 2021/1730. (See also Chapter 5)

100 Given the existence of likely alternative demand, Option 2 involves a non-zero opportunity cost. However, for the purpose of enabling their rollout of RMR, it is also necessary to consider whether the level of charges might unduly discourage efficient rollout. Therefore, as described in Chapter 5, while Option 2 would give fees reflective of the long run opportunity cost, the fees would need to be set conservatively at a value that is likely to be below the market value of the spectrum.

4.6 Step 3: Impact on Stakeholders

101 This section provides information in relation to the impacts on industry stakeholders arising from the potential adoption of the regulatory options above. ComReg notes that there are two broad categories of impacts relevant in this regard:

- First, the impact of the regulatory option on spectrum fees paid by Irish Rail for existing and future spectrum use (i.e., "Financial Impacts"); and
- Second, other relevant impacts arising from the implementation of the regulatory option(s) are assessed (i.e., other impacts).

102 In relation to the Financial Impacts, ComReg notes that any changes to the existing fees have the potential to affect Irish Rail, but also that the fee will be determined by the amount of spectrum that Irish Rail expresses demand for.

103 ComReg assesses Financial Impacts and the Assignment Impacts on stakeholders in turn below[65].

Option 1 vs. Option 2

a. Financial Impacts

[65] These assessments are not provided in any particular order and the issues they address can overlap.

104 Chapter 5 describes the fees set on the basis of long run opportunity cost (i.e. Option 2). In order to aid in the assessment of this Section, ComReg summarises the fees under this Option in Table 1 and Table 2 below. Readers are referred to Chapter 5 for further details. In summary, the fees attached to Option 2 are lower than Option 1. For example:

- For the 900 MHz Band, the fees under Option 2 are around 7% lower compared to Option 1.
- For the 1.9 GHz Band, the fees under Option 2 are over 50% lower compared to Option 1.

105 The overall financial impact depends on (i) the amount of spectrum required by Irish Rail and (ii) when those rights of use are required (i.e. commencing Year 1, 2, 3 etc of the 20-year duration). At a minimum, Irish Rail are likely to retain their existing GSM-R rights of use (i.e. 3.4 GHz in the 900 MHz Band) which would result in a reduction of approximately €16,000 per annum.

106 It is less likely that Irish Rail will immediately require rights of use in the 1.9 GHz Band given the use of FRMCS is unlikely to be considered by Irish Rail until the mid-2030s[66]. Notwithstanding, should all those 1.9 GHz rights of use be required, the fees associated with Option 2 would be approximately €155,000 per annum less compared to Option 1.

Table 1: Annual fee per MHz for both options

	Option 1	Option 2
900 MHz	€30,201	€28,005
1.9 GHz	€30,201	€14,733

Table 2: Annual fee if all rights of use are assigned

	Option 1	Option 2
900 MHz Band (3.6 MHz)	€217,447	€201,636
1.9 GHz Band (10 MHz)	€302,010	€147,330

107 Therefore, ComReg expects that Irish Rail is more likely to prefer Option 2 because spectrum fees set using this regulatory option would result in a lower price per MHz being charged across all bands and is less likely to disincentivise

[66] ERTMS, National Implementation Plan, June 2024.

the deployment of additional FRMCS infrastructure in the future (e.g. through use of 1.9 GHz or otherwise).

b. Other impacts

108 Because Option 2 is based on long run opportunity cost (an approach used by ComReg in similar circumstances)[67], it provides a predictable regulatory framework, such that, stakeholders are aware that ComReg, in providing for the efficient use of valuable spectrum, will use a consistent approach to spectrum pricing. ComReg refers to Paragraph 92 above for previous decisions in relation to the administrative spectrum fees.

109 A predictable regulatory framework in which spectrum users can anticipate that the pricing of future spectrum bands will typically be based on opportunity cost should assist with efficient decision-making about spectrum use and associated investments in network equipment. Such an approach reduces the extent to which alternative users of the radio spectrum could be assigned the same or similar spectrum on preferable terms in any follow up process.

110 Therefore, ComReg is of the preliminary view that Irish Rail would prefer Option 2 because the associated spectrum fees are lower and it would provide a consistent regulatory approach.

4.7 Step 4: Impact on Competition and consumers

4.7.1 Impact on Competition

111 As outlined above, (see Policy Issues and Objectives) there are different elements to competition that are relevant in determining the impact of any of the preferred options. There is a natural overlap between the aims of the fee methodology and an assessment of ComReg's compliance with some of its statutory obligations, particularly that of promoting competition, in accordance with Section 12 of the 2002 Act.

112 Given that Irish Rail is the only entity in the State that can be assigned rights of use to the RMR Frequencies, there is a limited overall impact on competition. Notwithstanding, there are impacts on competition that remain relevant under Section 12 including:

- Encouraging efficient use and ensuring effective management of radio frequencies and numbering resources[68]. ("Efficiency and effective

[67] For example the Mobile Satellite Services with Complementary Ground Component Authorisation Regime.
[68] Section 12(2)(a) of the 2002 Act.

management of the radio spectrum"); and

- Encouraging efficient investment in infrastructure and promoting innovation[69] ("Efficient investment").

113 ComReg provides its assessment of each below.

Efficiency and effective management of radio spectrum

114 ComReg's spectrum management role requires that operators with spectrum assignments are incentivised to efficiently use those spectrum assignments.

115 Under Option 1, fees are not set in relation to the opportunity costs of the spectrum and there are few incentives to use the spectrum efficiently. Irish Rail would have few incentives to consider that the frequencies administratively assigned to it might be more efficiently used by other users in the long run and beyond the duration of the licence. This is particularly relevant for the 1.9 GHz Band which has not yet been assigned and would be subject to significantly higher fees under Option 1.

116 Alternatively, Option 2 considers a broader notion of opportunity cost which includes alternative uses of the radio spectrum not considered in Decision 2021/1730. This approach includes all relevant alternative uses in determining spectrum fees and aims to avoid distorting incentives in the shorter run. In terms of longer-run efficiency, this approach considers the use of spectrum beyond the expiry of the licence and provides more appropriate price signals to promote efficient use.

117 Longer-run efficiency considerations are important as fees set in such a manner help to promote efficient assignment of the radio spectrum in the future, including beyond the expiry of the RMR licences. In the long-run, RMR licences will expire and the spectrum will become available for re-assignment. It is important to provide appropriate long-run incentives to facilitate efficient assignment as it is currently unclear what decisions about the future allocation of the spectrum will be taken on expiry.

118 Opportunity cost pricing gives appropriate incentives at the point where the licence expires. On expiry, RMR users might be expected to make a claim on the use of the spectrum and anticipating the application of opportunity cost pricing gives appropriate incentives at the point that licence expires, particularly given the likelihood of alternative users. In the longer-run, prices based on opportunity cost provide appropriate price signals and incentives, both to use available spectrum more efficiently and not to unduly use additional spectrum if

[69] Section 12(2)(a) of the 2002 Act.

it is not required (e.g. 1.9 GHz Band). ComReg also notes that such incentives are best maintained by generally applying a consistent and predictable approach to pricing spectrum.

119 An effectively functioning fees framework should ensure that licensees are incentivised to use assigned rights of use as efficiently as possible (i.e., the least amount of spectrum necessary to deliver a service at certain levels) and not rely on additional rights of use when a service could be delivered using less, or the current rights of use already assigned. If the cost of holding additional spectrum rights of use is either too low or even non-existent, the incentives to use those rights of use efficiently are reduced.

120 Therefore, ComReg is of the preliminary view that Option 2 is likely to better ensure the more efficient use of the radio spectrum.

Efficient investment

121 Creating the conditions for promoting efficient investment and innovation in new and enhanced infrastructure involves ComReg exercising its regulatory functions in an appropriate and predictable fashion, thus providing regulatory certainty. Any option should provide certainty that the regulatory framework, which often underpins investment decisions, will not change unnecessarily and require operators to make subsequent and additional investments and/or changes to their network. In this way, this proposed fees regime should provide Irish Rail with greater certainty regarding its access to the RMR spectrum, and the associated spectrum fees. With this greater regulatory certainty, the licensee can invest in its RMR network over the duration of the licence with greater confidence.

122 Promoting competition and encouraging efficient investment, in ComReg's view, means allowing for a cost-effective deployment of RMR by Irish Rail, and preventing inefficient investment caused by predictable changes to the regulatory regime. With that in mind, it is important that any option considers the likely long-run development of the market to avoid future changes to the regulatory framework that could have been foreseen or give rise to additional cost.

123 Fees have a role in encouraging efficient use, however, such fees should not be set at a level that would discourage efficient investment. Prices that are set too high could lead to scarce spectrum being unused, or under-used (e.g., with an operator choosing not to deploy sites at the expense of reduced service quality). Under Option 1, the investment in the rail communications network used to deliver GSM-R has been efficient given the successful operation of that

system to date. Indeed, ComReg's engagement with Irish Rail through its information gathering[70] did not uncover any use cases that were restricted through the existing fee levels or structure (Option 1).

124 However, it is unlikely that the benefits of this Option can persist in the long run when FRMCS services may need to be considered and more spectrum would be required – this arises because the fee structure under Option 1 does not consider the long run opportunity cost, including the 1.9 GHz Band which could lead to unduly high fees that would discourage efficient deployment (as highlighted in Table 1 and 2 above fees for 1.9 GHz are approximately 100% higher than those proposed under Option 2). The use of FRMCS in the future would encourage innovation and development in rail communications infrastructure, and Option 2 would better ensure the rollout of these new radio technologies because the opportunity cost approach results in more proportionate fees for existing rights and any additional rights it may require.

125 Given the above, Option 2 is likely to better promote more efficient investment.

Conclusion on impact on competition

126 Given the above, ComReg is of the preliminary view that a long-run opportunity cost approach under Option 2 would better promote competition under Section 12 of the Act.

4.7.2 Impact on Consumers

127 Prior to setting out the impact on consumers from each of the regulatory options, it is useful to briefly describe how RMR rights of use would be used.

The use of RMR

128 Rail supports a wide array of economic and social activities.[71] Rail is an important form of transport across the State. In 2023, Irish passengers made a total of 46.1 million rail journeys in Ireland, an increase of 28.5% on 2022. In addition, Irish Rail provides freight business services to a number of sectors located in rural Ireland, which provide employment in these regions[72]. It is important to note that RMR rights of use are not used to provide wireless broadband services to consumers on the train. RMR is used solely for daily railway operational purposes.

129 RMR (i.e. GSM-R and/or FRMCS**)** and other radio systems are essential for

[70] RFI to Irish Rail.
[71] Department of Transport and Department for Infrastructure All-Island Strategic Rail Review
[72] This service is based on three traffic flows: Zinc and lead concentrates from Tara Mines to Dublin Port, Intermodal trains from Ballina to Dublin Port, Bulk wood from Ballina and Westport to Waterford.

daily railway operation, to ensure the safe and timely arrival and departure of trains, and management of track operations. RMR offers a wide set of voice and data communication services typical of public mobile ECN (e.g., from SMS, data transmission, calling, call forwarding) to specific functions related to rail (signalling[73] and shunting[74]). Access to the RMR is tightly controlled with only validated SIM cards being able to access the network. In Ireland, the Commission for Railway Regulation ("CRR") requires that GSM-R be enabled in all trains in service:[75]

"A GSM-R voice Cab Radio shall be provided in each driving cab that is required to be used as a driving cab of a train in service. A train fitted with a GSM-R only Cab Radio shall only operate over rail lines where compatible GSM-R Fixed Infrastructure is available, as outlined in the IM Network Statement."

Figure 7: Example of GSM-R in-cab Handset

130 A key use of GSM-R is to enable train drivers to use radios to keep in touch with rail traffic operators and to send/receive radio alerts when necessary. It is also used to transmit digital information between the driver's cab and the equipment on the ground and tracks. GSM-R facilitates the communication between train driver and traffic control centres, by providing specific features such as group communication (driver to signalman), location dependent addressing, priority levels, railway emergency calls and shunting communication.

131 Rail operators can also use GSM-R for a variety of other applications including,

[73] Rail signalling is a system used to direct railway traffic and keep trains clear of each other at all times.
[74] Rail shunting is the process of sorting, organizing, and reconfiguring rail carriages to ready freight trains for departure
[75] CRR *"Irish Railway Standard IRS-202-A"* 31 October 2019

trackside maintenance warning systems, train departure support applications, passenger information systems, status monitoring of trackside and rolling stock and train positioning, etc. In addition, GSM-R can be used for various rolling stock operations, such as shunting radios and other GSM-R hand-held radios.

132 In the future, FRMCS will help to improve the performance, regularity and robustness of the rail network. This rail communications system will enable larger volumes of data to be transmitted, received and used than is possible with GSM-R technology and will be required for Automated Train Operation (ATO) in urban areas[76].

133 Furthermore, while not a safety system, RMR supports safety features with respect to the Emergency Call functionality. The Emergency Call is a call set up in some dangerous situations to warn all trains / shunting movements equipped with GSM-R in a defined area. For example, The European Commission previously noted that "*in case of an accident (collision, fire on train, derailment…), GSM-R helps by supporting the emergency response to mitigate the consequences of the accident. Disruption of GSM-R service might as well have an impact on passengers' health, causing people to fall or be hurt (emergency breaking).*"[77]

Option 1 vs. Option 2

134 Although consumers are not direct users of RMR systems, they would likely be impacted indirectly through the use of such systems, for example, by rail operators who provide rail services which are used by consumers. Consumers are therefore likely to prefer options that are more likely to result in the efficient rollout and delivery of RMR Services which should improve the service and safety of the rail services that they use, noting that around 175,000 people use the train every day.[78]

135 With that in mind, consumers are likely to prefer Option 2 because it is more likely to result in the efficient rollout of RMR services as described in the impact on competition above. In particular, Option 2 is less likely to choke off efficient use in the future when access to the 1.9 GHz Band may be required.

4.8 ComReg's preferred Option

136 ComReg is of the preliminary view that Option 2, represents a reasonable and pragmatic approach to estimating fees that are reflective of long-run opportunity cost, and is the most appropriate regulatory option to adopt in the context of the

[76] See Recital 2 – Decision 2021/1730
[77] European Commission: Radio Spectrum Committee Working Document on GSM-R interferences and coexistence with public mobile networks. 13.07.2016.
[78] NTA National Rail Census Report 2022

RIA analytical framework. In particular, Option 2:

- Would accord with ComReg's statutory objective of encouraging the efficient use and ensuring the effective management of spectrum, by taking account of long-run efficiency considerations;
- Sets conservative fees that are reflective of opportunity cost to ensure Irish Rail are not unduly discouraged from rolling out services; and
- Provides regulatory predictability about the pricing mechanism ComReg will apply to similar bands in the future.

5 Setting Fees for RMR

5.1 Introduction

137 In its draft RIA, ComReg set out its preliminary view that the spectrum fees for RMR should be based on long-run opportunity cost. This Chapter considers the methodology for determining the fees based on long-run opportunity cost, including the fees that will apply to the RMR rights of use.

138 The remainder of this chapter is structured as follows:

- Section 5.2 describes the proposed fee structure;
- Section 5.3 describes the proposed fees; and
- Section 5.4 provides some concluding remarks.

5.2 Fee Structure

139 Prior to setting out fees based on long-run opportunity costs, ComReg notes its two overarching objectives.

140 **First**, if RMR fees are not set sufficiently high, Irish Rail has little incentive to consider that the frequencies administratively assigned to it might be more efficiently used by other users in the long run and beyond the duration of the licence. If fees are set too low, then licensees might have little incentive to return those rights of use to ComReg. This would not provide for the optimal use of the spectrum as required under Regulation 22.

141 An effectively functioning fees framework should ensure that licensees are incentivised to use assigned rights of use as efficiently as possible, avoiding excessive spectrum use, and return spectrum rights that are not going to be used over the remainder of the licence. This applies even where there are no alternative users because it allows for better allocation decisions to be made in the future.

142 **Second**, fees should not be so high as to significantly discourage deployment of RMR. Within this context, ComReg is of the view that the pricing structure should have the objective of not discouraging the rollout of RMR where it is efficient to do so.

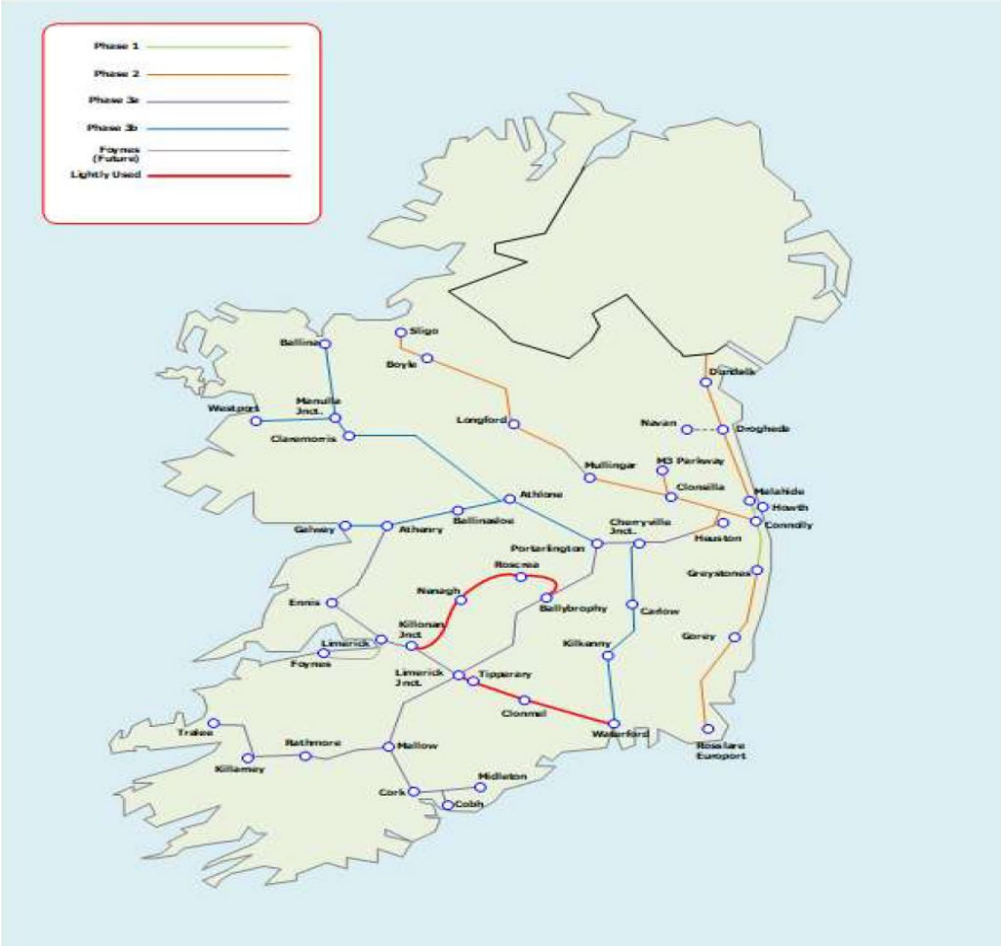
143 The remainder of this section discusses the proposed structure of the RMR fees under the following headings:

- Geographic scope; and
- Per site or Fixed Fee

5.2.1 Geographic scope

144 The Irish Rail network currently extends to approximately 2,400 km of operational track, c.4,440 bridges, c. 1,100-point ends, c.970 level crossings, 145 stations, 3,300+ cuttings and embankments, 372 platforms and 13 tunnels. The network includes the main line, Dublin suburban and commuter passenger routes, together with freight-only routes.[79]

Figure 8: Irish Rail GSM-R deployment



145 The Irish Rail network and the provision of GSM-R is illustrated in Figure 8 above. Currently, 258 base stations are used to deliver GSM-R services and Irish Rail estimates that to complete full coverage, an additional 48 sites will be required (i.e. a total of 306), which it expects would be completed by the end of 2027. Irish Rail have stated that a business case is yet to be made for the

[79] IE-2024-Network-Statement.pdf

deployment of six of these additional base stations, hence they have no commencement or completion date.

146 While RMR would be available on a national basis, Irish Rail's use of RMR rights of use would be limited to the coverage area associated with its rail and RMR network (i.e. 258 base stations)[80]. There would be a high risk that fees calculated on a national geographic licence basis would only choke off RMR, due to such fees covering a wider geographic area than that needed by Irish Rail to provide RMR on its network.

147 Therefore, ComReg is of the provisional view that fees should be set in proportion to the size of the RMR network rather than on a full national basis.

5.2.2 Per site v Fixed Annual Fee

148 Given the above, it is necessary to determine the coverage area over which RMR would apply and the fees that should be charged. However, a prediction or propagation model of the RMR radio coverage area using base station parameters (e.g. location, type, antenna, mast height, etc) and terrain types/geographical features (e.g. hills, woods, urban areas, large buildings, cuttings and tunnels) would be unnecessarily complex and be subject to a wide degree of variability depending on the inputting assumptions.

149 Alternatively, a fee could be based on the number of base stations that are used to deliver the RMR coverage. In this way, the spectrum fees would be limited by the number of base stations and be representative of the geographic scope of the RMR network. A similar approach to setting fees on a per base station basis was successfully implemented for the Mobile Satellite Services with Complementary Ground Component Authorisation Regime[81].

150 ComReg outlines the two alternative structures for setting fees for RMR, noting that both involve charging on a MHz per base station basis.

I. To set an annual charge per MHz for each individual base station deployed where an additional charge is applied for each additional base station deployed over the duration of the licence; or

II. A fixed annual fee per MHz per base station, based on the number of base stations, with the licensee being able to deploy additional base stations over the duration of the licence with no incremental fee for each additional base station.

[80] Current number of base stations is 258 but the Irish Rail estimated additional base stations will be included in fee calculation below.
[81] Mobile Satellite Services with Complementary Ground Component Authorisation Regime: Consultation Document and Draft Decision, 17/19

151 In relation to I, an incremental per base station charge can be appropriate where the operations associated with the use of the spectrum are small scale (i.e. a handful of base stations were required in MSS/CGC). However, ComReg is of the view that such a fee structure would not be appropriate in the case of the RMR licence as it could create a disincentive for licensees to increase scale and rollout additional base stations for the delivery of RMR in the future. ComReg notes that it is expected that a commercially available FRMCS[82] solution will be available in the early 2030's, at which point Irish Rail would develop an implementation strategy to have FRMCS deployed and operational before 2040.[83](noting that there is no deployment of FRMCS at present.)[84,85] Any such strategy may include provision for additional sites.

152 Alternatively, in relation to II, a fixed annual fee would provide regulatory certainty to Irish Rail over the duration of the licence because it would know in advance what the annual spectrum fee[86] would be regardless of how its network was dimensioned each year. This certainty would also enable Irish Rail to plan for any additional rollout of base stations and encourage more efficient use of the RMR spectrum. It would also provide flexibility for Irish Rail to dimension its network without having to consider the fees associated with additional sites. This would better encourage innovation in new and enhanced infrastructures.

153 Therefore, ComReg is of the preliminary view that a fixed annual fee calculated using a per base station charge, based on the number of Irish Rail base stations is the preferred approach.

5.3 Proposed Prices

154 A fixed annual fee for RMR using a per base station charge is estimated using the following steps.

1. The value of a full national license (per annum) for each of the RMR Bands is estimated based on valuations for alternative uses that are already available in adjacent bands.

2. The estimated value of the national licence is converted to an individual per base station charge using the number of base stations used by the alternative user for its national licence (e.g. mobile).

[82] RMR is comprised of two radio systems GSM-R and FRMCS (Future Railway Mobile Communication System).
[83] ERTMS, National Implementation Plan, June 2024.
[84] ERTMS, National Implementation Plan, June 2024. p9
[85] In response to an RFI to ComReg, Irish Rail noted that the intention is to begin market engagement for an FRMCS solution in 2032 with an 8 year roll out & commissioning to coincide with the expiration of the LTS support contract.
[86] Subject to CPI adjustment.

3. The individual base station charge is multiplied by the number of relevant RMR base stations to arrive at a fixed annual fee.

Step 1: Estimate value of full national licence for RMR Bands

155 As noted in the draft RIA above, the 900 MHz Band (880-915MHz paired with 925-960MHz) and the 2.1 GHz Band (1920 – 1980 / paired with 2110 – 2170 MHz) are adjacent to each of the RMR Bands. ComReg is therefore of the preliminary view that the valuation of these bands provides an appropriate estimate of the value of the RMR rights of use on a national basis.

156 Further, ComReg notes that the recently completed MBSA2 award provides an appropriate and recent benchmark for estimating the value of these bands. MBSA2 involved the assignment of the 2.1 GHz and 700 MHz Bands which is highly substitutable with the 1.9 GHz and 900 MHz band. Indeed, the minimum price for the 700 MHz involved benchmarking against 900 MHz and 800 MHz awards across Europe.

157 Rather than use final prices which cannot be easily extrapolated from a CCA (because bids are made for packages of complementary spectrum), ComReg instead considers it appropriate to use the minimum prices associated with that award which provides additional protection that the estimates of value are conservative and unlikely to choke off demand. These minimum prices used a price per MHz per capita of €0.46 for the 700 MHz Band and €0.25 for the 2.1 GHz Band, and are likely to be the most relevant for making a conservative estimate of the opportunity cost of the RMR spectrum. The benchmarking underlining these benchmarks has a common duration of 20 years and is therefore in line with the proposed duration of RMR licences.[87]

158 Updating for CPI in the intervening period results in the following estimated prices.

- €0.54 per MHz per capita for the 900 MHz RMR Band; and
- €0.29 per MHz per capita for the 1.9 GHz RMR Band

Step 2: Convert to an individual per base station charge

159 Using a discount rate of 4%[88] and a population of approximately 5.8 million (the

[87] Multi Band Spectrum Award – DotEcon Report – Benchmarking Update | Commission for Communications Regulation

[88] The test discount rate to be used in cost-benefit and cost-effectiveness analyses of public sector projects is 4%.
gov.ie - Project Evaluation/Appraisal: Applicable Rates

average population over the duration of the licence)[89], and noting that on average mobile operators have around 2,400 sites[90], leads to the following estimated prices.

- €93 per MHz per base station for the 900 MHz Band
- €49 per MHz per Base station for the 1.9 GHz Band.

Step 3: Convert to a fixed annual fee

160 The price per MHz per base station as set out above is converted to a national fee based on the 300 Irish Rail Base Stations through to the end of their GSM-R rollout. This figure of 300 base stations accounts for Irish Rail's planned additional base stations, which they have confirmed with ComReg that they expect to be completed by Q3 2027[91]. This results in the following fees for year one of any new RMR Licence.

- €28,005 per MHz per annum for the 900 MHz RMR Band.
- €14,733 per MHz per annum for the 1.9 GHz RMR Band.

161 Finally, the annual fixed fee per 2 x 1 MHz would be adjusted annually using the Consumer Price Index (CPI), with a view to ensuring that the value of these fees remains constant in real terms over the term of the licence.

5.4 Conclusion

162 At the outset of this Chapter, ComReg noted that in ensuring the optimal use, fees should not be so high as to choke off efficient demand which could discourage the deployment of RMR. In that regard, ComReg's approach took a conservative approach by setting fees based on the number of base stations (rather than on a national basis) and basing its valuation of RMR bands on the minimum prices for related bands (which were already set conservatively).

See also 4% discount rate used for a recent Irish Rail business case which refers to the public spending code guidelines.
20210910-DART-Programme-Preliminary-Business-Case_Final.pdf

[89] Population and Labour Force Projections 2023-2057 - Central Statistics Office

[90] This is approximately the average number of mobile base stations belonging to Eir, Three and Vodafone which operate on both the 800 MHz and 900 MHz Bands. The approximate average number of mobile base stations for these three MNOs in the 2.1 GHz band is 1,400. The average of 2,400 has been applied to both the 900 MHz RMR band and the 1900 MHz RMR band due to Irish Rail currently having no confirmed plans to use the second band. Therefore, the average number of base stations used in the 800 MHz and 900 MHz bands is applied to both RMR bands so as to ensure that the fees are set conservatively so as to ensure that investment from Irish Rail is not disincentivised.
Mobile & WBB-Licensed apparatus & sites | Commission for Communications Regulation

[91] 6 of the 48 additional base stations (referred to in paragraph 145 above) have not been included in the 300 figure because a business case is yet to be made for the deployment of these base stations, hence they have no commencement or completion date. Therefore, ComReg will not include these additional 6 base stations to ensure the fees charged are set conservatively so as to not to unduly disincentivise investment by Irish Rail in their RMR network.

163 ComReg also notes that the proposed fees are around 8% lower than the fees charged under the current GSM-R framework, which have been in place for over 10 years and during which time Irish Rail's GSM-R network has expanded by over 100%. It is therefore most unlikely that the proposed lower fees would discourage the deployment of RMR over the duration of the licence. ComReg's preferred option also results in fees for the 1.9 GHz Band that are 50% lower than what would have been the case if existing fees were used.

164 Further, the opportunity cost approach is calculated to be proportionate with the number of base stations and would not make RMR operations unviable where they are related to the operation of rail infrastructure. This allows Irish Rail to better take account of spectrum fees depending on the service they wish to offer and the size of network deployed.

165 ComReg therefore concludes that the proposed fees (based on long-run opportunity cost) are likely to ensure the optimal use of the spectrum.

6 Draft Decision Instrument

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

Decision

6.1 DEFINITIONS AND INTERPRETATIONS

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

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

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

"EECC Regulations" means the European Union (Electronic Communications Code) Regulations 2022, S.I. No. 444 of 2022;

"Electronic Communications Network" and **"Electronic Communications Service"** have the meanings assigned to them in the EECC Regulations;

"Minister" means the Minister of Environment, Climate and Communications;

"**Licence**" means a licence granted in accordance with section 5 of the Wireless Telegraphy Act 1926 in accordance with and subject to the matters prescribed in these Regulations to keep, have possession of, install, maintain, work and use Apparatus in a specified place in the State granted to the licensee;

"FRMCS" means Future Railway Mobile Communication System which is a successor of GSM-R that will support railway digitalisation and service innovation;

"GSM-R" means Global System for Mobile Communications – Rail;

"**Duration of Licence**" means the duration of time from the grant date of a Licence to midnight of 27 November 2045;

"**Licence Fee**" means the fee for telemetry systems as set out in draft form in Schedule 2 to the Railway Mobile Radio Licence Regulations;

"RMR Network" means Railway Mobile Radio Network with a radio communication system using GSM-R and its successor(s), and FRMCS for the operation of a railway network.

"Wireless Telegraphy Act 1926" means the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as amended.

6.2 DECISION-MAKING CONSIDERATIONS

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

   I. the contents of, and the materials and reasoning referred to in, as well as the materials provided by respondents in connection with, the below-listed ComReg documents (insofar as they are relevant to the present Draft Decision):

      a) ComReg Document 24/100 [document to which this draft Decision including draft Regulations is attached]; and

      b) ComReg Document XX/YY [document to which any future Decision including draft Regulations may be attached].

   II. the powers, functions, objectives and duties of ComReg, including, without limitation those under and by virtue of:

      a) the Communications Regulation Act 2002, and, in particular, sections 10, 12 and 13 thereof;

      b) Regulations 4, 5, 14, 15, 16, 17 and 27 of the EECC Regulations;

      c) Regulations 9, 14, 20, 24, 28, 30, 31, 34, 36, 99(1)(c), 105 and 110 of the EECC Regulations;

      d) Sections 5 and 6 of the Wireless Telegraphy Act 1926; and

      e) the applicable Policy Directions made by the Minister under section 13 of the Communications Regulation Act 2002.

   III. and, noting that it has given all interested parties the opportunity to express their views and make their submissions in accordance with Regulation 36 of the EECC Regulations and Regulation 101 of the EECC Regulations.

6.3 DECISIONS

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

   I. subject to obtaining the consent of the Minister to the making by it of the Railway Mobile Radio Licence Regulations, to make those regulations under section 6 of the Wireless Telegraphy Act 1926, prescribing relevant matters in relation to RMR Networks, including prescribing the form of the Licence concerned, its duration, fees, and the conditions and restrictions subject to which it is granted.

II. to grant a Railway Mobile Radio Licence, under section 5 of the Wireless Telegraphy Act 1926 to a relevant applicant subject to the conditions and restrictions (including conditions as to suspension and withdrawal), prescribed in the Railway Mobile Radio Licence Regulations as currently set out in Annex 3 of Document 24/100 [this document]

Duration of Licence

III. that a Licence shall, unless it has been revoked, withdrawn or surrendered, remain in force from the date of grant until the twentieth anniversary of the Railway Mobile Radio Licence Regulations.

Licence Fees

IV. that the Licence Fee shall be calculated in accordance with Schedule 2 as set out in the Railway Mobile Radio Licence Regulations.

V. that if a Licence is surrendered by the Licensee, the Licensee may be entitled to a refund of the relevant Licence Fee on a pro rata monthly basis.

VI. that if a Licence is suspended or withdrawn due to a finding by ComReg of non-compliance with any relevant licence conditions, the Licensee shall not be entitled to be repaid any part of the Licence Fee paid by the Licensee, but shall still be liable to pay any sums, including interest, that are outstanding.

VII. that if the amount of radio frequency spectrum specified in a Licence is reduced, the Licensee may be entitled to a refund of the relevant Licence Fee already paid in the relevant year on a pro rata monthly basis having regard to the nature of the amendment.

4. EFFECTIVE DATE

This Decision Instrument shall come into force on the day of its making.

5. MAINTENANCE OF OBLIGATIONS

If any section or clause contained in this Decision Instrument is found to be invalid or prohibited by the Constitution, by any other law or judged by a court to be unlawful, void or unenforceable, that section or clause shall, to the extent required, be severed from this Decision Instrument and rendered ineffective as far as possible without modifying the remaining section(s) or clause(s) of this Decision Instrument and shall not in any way affect the validity or enforcement of this Decision Instrument.

6. STATUTORY POWERS NOT AFFECTED

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

7 Submitting Comments and Next Steps (If Any)

7.1 Submitting Comments

167 All input and comments are welcome. It would make the task of analysing responses easier if comments were referenced to the relevant section / paragraph number in each chapter and annex in this document or the relevant accompanying consultant's report.

168 Please also set out your reasoning and all supporting information for any views expressed.

169 The consultation period will run until 17:00 on 30 January 2025 during which time ComReg welcomes written comments on any issues raised in this paper. While ComReg document 24/04 sets a minimum consultation period of 30 days, in this instance ComReg is making an exception by setting a 48 day consultation period noting that it will run over the Christmas period, and staff of interested parties may be on leave.

170 Submissions must be provided in written form (e-mail) to marketframeworkconsult@comreg.ie, clearly marked – "**Submissions to ComReg Document 24/100"**.

171 Electronic submissions should be submitted in an unprotected format so that they may be readily included in the ComReg submissions document for electronic publication.

172 ComReg appreciates that respondents may wish to provide confidential information if their comments are to be meaningful. To promote openness and transparency, ComReg will publish all respondents' submissions to this notice, as well as all substantive correspondence on matters relating to this document, subject to the provisions of ComReg's guidelines on the treatment of confidential information (Document 05/24[92]).

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

[92] ComReg Document 05/24, "*Guidelines on the treatment of confidential information*", published 22 March 2005, available at www.comreg.ie

options:

(a) Preferably, submit both a non-confidential version and a confidential version of the response. The confidential version must have all confidential information clearly marked and highlighted in accordance with the instruction set out below and include the reasons as to why they consider any particular material to be confidential. The separate non-confidential version must have actually redacted all items that were marked and highlighted in the confidential version.

OR

(b) Submit only a confidential version including the reasons as to why they consider any particular material to be confidential and ComReg will perform the required redaction to create a non-confidential version for publication. With this option, respondents must ensure that confidential information has been marked and highlighted in accordance with the instructions set out below. Where confidential information has not been marked as per our instructions below, then ComReg will not create the nonconfidential redacted version and the respondent will have to provide the redacted non-confidential version in accordance with option A above.

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

(a) Confidential information contained within a paragraph must be highlighted with a chosen particular colour,

(b) Square brackets must be included around the confidential text (one at the start and one at the end of the relevant highlighted confidential information),

(c) A Scissors symbol (Symbol code: Wingdings 2:38) must be included after the first square bracket.

For example, “Redtelecom has a market share of [✂ 25% ✂].”

7.2 Next Steps

175 Following receipt and consideration of submissions in response to this draft Decision, and other relevant material, ComReg intends to publish a response to this draft Decision together with its final Decision including Regulations.

176

Annex: 1 Relevant Legal Framework

A 1.1 The Communications Regulation Act 2002 (as amended) (the "2002 Act"), the European Electronic Communications Code (which has repealed the EU Common Regulatory Framework, namely the Framework and Authorisation Directives)[93], as transposed by S.I. No. 444 of 2022, the European Union (Electronic Communications Code) Regulations 2022 (the "ECC Regulations") and the Communications Regulation and Digital Hub Development Agency (Amendment) Act 2023 (the "2023 Act"), and the Wireless Telegraphy Acts 1926 to 2009[94] set out, amongst other things, ComReg's functions and objectives that are relevant to the management of the radio frequency spectrum in Ireland and to this Response to Consultation and Decision document including Regulations.

A 1.2 Apart from licensing and making regulations in relation to licences, ComReg's functions include the management of Ireland's radio frequency spectrum in accordance with ministerial Policy Directions under Section 13 of the 2002 Act, having regard to its objectives under Section 12 of the 2002 Act, and Regulation 4 of S.I. No. 444 of 2022.

A 1.3 This annex is intended as a general guide as to ComReg's role in this area, and not as a definitive or exhaustive legal exposition of that role. Further, this annex restricts itself to consideration of those functions, objectives powers, and duties of ComReg that appear most relevant to the matters at hand and generally excludes those not considered relevant (for example, in relation to postal services, premium rate services or market analysis). For the avoidance of doubt, however, the inclusion of particular material in this annex does not necessarily mean that ComReg considers same to be of specific relevance to the matters at hand. All references in this annex to enactments are to the enactment as amended at the date hereof, unless the context otherwise requires.

The European Electronic Communications Code

A 1.1 On 20 December 2018, Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code ("EECC") entered into force.

[93] Directive 2018/1972 of the European Parliament and of the Council of 11 December 20181 establishing the European Electronic Communications Code.
[94] The Wireless Telegraphy Acts 1926 to 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

A 1.2 It is important to note that further to Article 125 ("Repeal") of the EECC, with effect from 21 December 2020, the EECC replaced the EU Common Regulatory Framework adopted in 2002 (and amended in 2009) under which ComReg has regulated electronic communications since 2003[95].

A 1.3 With some limited exceptions (see Article 124 of the EECC), Member States had until 21 December 2020 to transpose the EECC into national law[96]. The statutory instrument transposing key provisions of the EECC has been published as S.I. No. 444 of 2022[97] and has been commenced by the Minister[98]. Other provisions of the EECC have been transposed in the Communications Regulation and Digital Hub Agency (Amendment) Act 2023, which has also been commenced[99].

A 1.4 All references in this annex to enactments are to the enactment as amended at the date hereof unless the context otherwise requires.

Primary Functions and Objectives and Regulatory Principles under the 2002 Act and EECC as transposed.

A 1.5 ComReg's relevant functions pursuant to Section 10 of the Communications Regulation Act 2002, as amended, include the management of the radio frequency spectrum and the national numbering resource. ComReg's primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under section 13 of the 2002 Act;
- Promote competition[100];
- Contribute to the development of the internal market[101]; and
- Promote the interests of users within the Community[102].

[95] For the correlation table between relevant articles of the repealed Directives and the EECC, please see Annex XIII of the EECC available here- EUR-Lex - 02018L1972-20181217 - EN - EUR-Lex (europa.eu)
[96] With the exception of Articles 53(2), (3) and (4), and Article 54 (See Article 124).
[97] S.I. No. 444 of 2022, The European Union (Electronic Communications Code) Regulations 2022.
[98] By virtue of S.I. No. 300 of 2023, the European Union (Electronic Communications Code) (Amendment) Regulations 2023.
[99] By virtue of S.I. No. 299 of 2023, the Communications Regulation and Digital Hub Development Agency (Amendment) Act 2023 (Commencement) (No.2) Order 2023.
[100] Section 12 (1)(a)(i) of the 2002 Act.
[101] Section 12 (1)(a)(ii) of the 2002 Act.
[102] Section 12(1)(a)(iii) of the 2002 Act.

A 1.6 ComReg, in carrying out its regulatory tasks specified in S.I. No. 444, shall take all reasonable measures which are necessary and proportionate for achieving the objectives set out in Regulation 4(3), including the objective to promote connectivity and access to, and take-up of, very high-capacity networks, including fixed, mobile and wireless networks, by all consumers and businesses in the State[103].

Management of radio spectrum

A 1.7 Regulation 27 of S.I. No. 444 of 2022 governs the management of radio spectrum. Regulation 27(1) requires that ComReg, subject to any directions issued by the Minister pursuant to Section 13 of the 2002 Act and having regard to its objectives under Section 12 of the 2002 Act, Regulation 4 of S.I. No. 444 of 2022, and Article 4 of the Directive, ensure:

(a) the effective management of radio frequencies for ECN and ECS;

(b) that the allocation of, the issuing of general authorisations in respect of, and the granting of individual rights of use for radio spectrum for ECN and ECS are based on objective, transparent, pro-competitive, non-discriminatory and proportionate criteria; and

(c) ensure that harmonisation of the use of radio frequency spectrum by ECN and ECS across the EU is promoted, consistent with the need to ensure its effective and efficient use and in pursuit of benefits for the consumer such as competition, economies of scale and interoperability of networks and services, having regard to all decisions and measures adopted by the European Commission in accordance with Decision No.676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in EU (namely the Radio Spectrum Decision).

A 1.8 Regulation 27(3) provides that, without prejudice to Regulation 27(4), ComReg must ensure that all types of technology used for the provisions of ECN or ECS may be used in the radio spectrum declared available for ECSs in the Radio Frequency Plan published under Section 35 of the 2002 Act in accordance with EU law.

A 1.9 Regulation 27(4) provides that, notwithstanding Regulation 17(3), ComReg may, through licence conditions or otherwise, provide for proportionate and non-discriminatory restrictions to the types of radio network or wireless access technology used for ECS where this is necessary to:

[103] Regulation 4(3)(a) of S.I. No. 444 of 2022.

(a) avoid harmful interference;

(b) protect public health against electromagnetic fields;

- (c) ensure technical quality of service;
- (d) ensure maximisation of radio frequency sharing
- (e) safeguard the efficient use of spectrum; or
- (f) ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in accordance with Regulation 27(7).

A 1.10 Regulation 27(5) provides that without prejudice to Regulation 27(7), ComReg must ensure that all types of ECS may be provided in the radio spectrum, declared available for ECS in the Radio Frequency Plan published under Section 35 of the Act of 2002 in accordance with EU law.

A 1.11 Regulation 27(6) provides that, notwithstanding Regulation 17(4), ComReg may provide for proportionate and non-discriminatory restrictions to the types of ECS to be provided, including where necessary, to fulfil a requirement under the International Telecommunication Union Radio Regulations ("ITU-RR").

A 1.12 Regulation 27(7) requires that measures that require an ECS to be provided in a specific band available for ECS shall be justified in order to ensure the fulfilment of a general interest objective as laid down by or on behalf of the Government or a Minister of the Government in accordance with EU law including, but not limited to:

(a) safety of life;

(b) the promotion of social, regional or territorial cohesion;

(c) the avoidance of inefficient use of radio frequencies; or

(d) the promotion of cultural and linguistic diversity and media pluralism, for example, by the provision of radio and television broadcasting services.

A 1.13 Regulation 27(8) provides that ComReg may only prohibit the provision of any other ECS in a specific radio spectrum frequency band where such a prohibition is justified by the need to protect safety of life services. ComReg may, on an exceptional basis, extend such a measure in order to fulfil other general interest objectives as laid down by or on behalf of the Government or a Minister of the Government in accordance with European law.

A 1.14 Regulation 27(9) provides that ComReg shall regularly review the necessity of any restrictions imposed under Regulation 27 and shall make the results of such reviews publicly available.

A 1.15 Regulation 27(10) requires ComReg to, in the fulfilment of its obligations under Regulation 27, respect relevant international agreements, including the ITU-RR and other agreements adopted in the framework of the ITU applicable to radio spectrum, any public policy considerations brought to its attention by the Minister.

Authorisation of use of radio spectrum

A 1.16 Regulation 28(1) of S.I. No. 444 of 2022 provides that ComReg shall facilitate the use of radio spectrum, including shared use, under a general authorisation under Regulation S.I. No. 444 of 2022 and limit the granting of individual rights of use for radio spectrum where such rights are necessary to maximise efficient use in light of demand and taking into account the criteria set out in Regulation 28(2).

A 1.17 Regulation 28(2) of S.I. No. 444 of 2022 provides that ComReg may decide to grant individual rights of use for radio frequencies by way of a licence taking account of:

a) the specific characteristics of the radio spectrum concerned;

b) the need to protect against harmful interference;

c) the development of reliable conditions for radio spectrum sharing, where appropriate;

d) the need to ensure technical quality of communications or service;

e) objectives of general interest as laid down by or on behalf of the Government or a Minister of the Government in conformity with EU law; and

f) the need to safeguard the efficient use of spectrum.

A 1.18 Regulation 28(3) provides that when considering whether to issue general authorisations or to grant individual rights of use for the harmonised radio spectrum, taking into account technical implementing measures adopted in accordance with Article 4 of the Radio Spectrum Decision, ComReg shall seek to minimise problems of harmful interference, including in cases of shared use of radio spectrum on the basis of a combination of general authorisation and individual rights of use.

A 1.19 Regulation 29(1) of S.I. No. 444 of 2022 provides that ComReg shall attach conditions to individual rights of use for radio spectrum in accordance with Regulation 9(1) in such a way as to ensure optimal and the most effective and efficient use of radio spectrum. Regulation 29(7) provides that Regulation 29 is without prejudice to the Act of 1926.

Publication of procedures

A 1.20 Regulation 30(2)(a) of S.I. No. 444 of 2022 requires that ComReg shall, having regard to the provisions of Regulation 27 of the S.I. No. 444 of 2022, establish open, objective, transparent, non-discriminatory and proportionate procedures for the granting of individual rights of use for radio spectrum and cause any such procedures to be made publicly available.

Duration of rights

A 1.21 Regulation 31(1) of S.I. No. 444 of 2022 provides that rights of use for radio spectrum shall be in force for such period as ComReg considers appropriate in light of the objectives pursued in accordance with Regulation 36(2) and (3), taking due account of the need to ensure competition, as well, as in particular, effective and efficient use of radio spectrum, and to promote innovation and efficient investments, including by allowing for an appropriate period for investment amortisation.

A 1.22 Regulation 31(2) provides that where ComReg decides to grant individual rights of use for radio spectrum for which harmonised conditions have been set by technical implementing measures in accordance with the Radio Spectrum Decision in order to enable its use for wireless broadband electronic communications services for a limited period, it shall ensure regulatory predictability for the holders of the rights over a period of at least 20 years regarding conditions for investment in infrastructure which relies on the use of such radio spectrum, taking account of the requirements referred to in Regulation 31(1).

Conditions attached to rights of use for radio spectrum

A 1.23 Regulation 9(1) of S.I. No. 444 of 2022 provides that, notwithstanding Section 5 of the Wireless Telegraphy Act,1926, but subject to any regulations under Section 6 of that Act, where ComReg specifies conditions to be attached to rights of use for radio spectrum, it may only attach such conditions as are listed in Part D of the Schedule 1. Part D lists the following conditions which may be attached to rights of use:

- Obligation to provide a service or to use a type of technology within the limits of Regulation 27, including, where appropriate, coverage and quality of service requirements.
- Effective and efficient use of radio spectrum in conformity with the Regulations.
- Technical and operational conditions necessary for the avoidance of harmful interference and for the protection of public health against electromagnetic fields, taking utmost account of Recommendation 1999/519/EC where such conditions are different from those included in the general authorisation.
- Maximum duration in conformity with Regulation 31, subject to any changes in the National Frequency Allocation Plan.
- Transfer or leasing of rights at the initiative of the holder of the rights and conditions of such transfer in conformity with these Regulations.
- Fees for rights of use in accordance with Regulation 24.
- Any commitments which the undertaking obtaining the rights of use has made in the framework of an authorisation or authorisation renewal process prior to the authorisation being granted or, where applicable, to the invitation for application of rights of use.
- Obligations to pool or share radio spectrum or allow access to radio spectrum for other uses in specific regions or at national level.
- Obligations under relevant international agreements relating to the use of radio spectrum bands.
- Obligations specific to an experimental use of radio frequencies.

A 1.24 Regulation 9(2) provides that (a) any attachment of conditions under Regulation 1) or (b) non-application under paragraph (1) of conditions to undertakings of a class or type as may be determined by ComReg, to rights of use for radio spectrum shall be non-discriminatory, proportionate and transparent and in accordance with Regulation 27.

A 1.25 Pursuant to Regulation 9(3) of S.I. No. 444 of 2022, an undertaking shall comply with the conditions attaching to rights of use for radio spectrum applicable to it.

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

A 1.26 Regulation 36(1) of S.I. No. 444 of 2022 provides that, without prejudice to Regulation 35, where ComReg concludes that a right to use radio spectrum cannot be subject to a general authorisation and where it considers whether to limit the number of rights of use to be granted for radio spectrum, it shall, inter alia, without prejudice to Sections 13 and 37 of the 2002 Act:

- clearly state the reasons for limiting the rights of use, in particular by giving due weight to the need to maximise benefits for users and to facilitate the development of competition and review the limitation at intervals which it considers reasonable or at the reasonable request of any undertaking affected as appropriate;, and
- give all interested parties, including users and consumers, the opportunity to express their views in accordance with Regulation 101.

A 1.27 Regulation 36(2)(a) of S.I. No. 444 of 2022 provides that ComReg may decide , having taken into account the matters referred to in paragraph (1)(a) and (b), that the number of rights of use for radio spectrum referred to in that paragraph ought to be limited and, where the Regulator so decides, it shall clearly establish, and give reasons for, the objectives pursued by means of a competitive or comparative selection procedure under this Regulation, and where possible quantify them, giving due weight to the need to fulfil national and internal market objectives.

A 1.28 Regulation 36(7) provides that where the granting of rights of use for radio spectrum needs to be limited, ComReg shall grant such rights on the basis of selection criteria and a selection procedure which are objective, transparent, non-discriminatory and proportionate. Any such selection criteria shall give due weight to the achievement of the objectives and requirements of section 12 of the Act of 2002 and Regulations 4, 16 and 27.

Fees for spectrum rights of use

A 1.29 Regulation 24(1) of S.I. No. 444 of 2022 permits ComReg, subject to sections 13 and 37 of the Act of 2002, to impose fees for rights of use for radio spectrum, which reflect the need to ensure the optimal use of the radio spectrum.

A 1.30 Pursuant to Regulation 24(2) of S.I. No. 444 of 2022, ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and the general objectives of the Directive and Regulation S.I. No. 444 of 2022. Regulation 23(3) provides that with respect to rights of use for radio spectrum, ComReg shall seek to ensure that applicable fees are set at a level which ensures efficient assignment and use of radio spectrum by: (a) setting reserve prices as minimum fees for rights of use for radio spectrum by having regard to the value of those rights in their possible alternative uses; (b) taking into account costs entailed by conditions attached to those rights; and (c) applying, to the extent possible, payment arrangements linked to the actual availability for use of the radio spectrum.

Amendment of rights and obligations

A 1.31 Regulation 14(1) of S.I. No. 444 of 2022 permits ComReg to amend rights, conditions and procedures concerning rights of use for radio spectrum, provided that any such amendment may only be made in objectively justified cases and in a proportionate manner, taking into consideration, where appropriate, the specific conditions applicable to transferable rights of use for radio spectrum or for numbering resources.

Other Relevant Legislation and Policy Instruments

Wireless Telegraphy Act, 1926 (the "1926 Act")

A 1.32 Under Section 5(1) of the 1926 Act, ComReg may, subject to that Act, and on payment of the prescribed fees (if any), grant to any person a licence to keep and have possession of apparatus for wireless telegraphy in any specified place in the State.

A 1.33 Section 5(2) provides that, such a licence shall be in such form, continue in force for such period and be subject to such conditions and restrictions (including conditions as to suspension and withdrawal) as may be prescribed in regard to it by regulations made by ComReg under Section 6.

A 1.34 Section 5(3) also provides that, where it appears appropriate to ComReg, it may, in the interests of the efficient and orderly use of wireless telegraphy, limit the number of licences for any particular class or classes of apparatus for wireless telegraphy granted under Section 5.

A 1.35 Section 6 provides that ComReg may make regulations prescribing in relation to all licences granted by it under Section 5, or any particular class or classes of such licences, all or any of the following matters:

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

A 1.36 Section 6(2) provides that Regulations made by ComReg under Regulation 6 may authorise and provide for the granting of a licence under section 5 subject to special terms, conditions, and restrictions to persons who satisfy it that they require the licences solely for the purpose of conducting experiments in wireless telegraphy.

A 1.37 Regulation 9(1) of S.I. No. 444 of 2022 provides that, notwithstanding section 5 of the Act of 1926 but subject to any regulations made under section 6 of that Act, where ComReg specifies conditions to be attached to rights of use for radio spectrum, it may only attach such conditions as are listed in Part D of Schedule 1 to S.I. No. 444 of 2022.

A 1.38 Regulation 30(7) of S.I. No. 444 of 2022 provides that for the purpose of Regulation 30, a general authorisation for the use of radio spectrum shall be facilitated by way of an order made by ComReg under section 3(6) of the 1926 Act, declaring that a particular class or description of apparatus for wireless telegraphy is one to which the licence requirements of section 3 of the 1926 Act do not apply.

Broadcasting Act 2009 (the "2009 Act")

A 1.39 Section 132 of the 2009 Act relates to the duties of ComReg in respect of the licensing of spectrum for use in establishing digital terrestrial television multiplexes and places an obligation on ComReg to issue:

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

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

A 1.40 Article 4 of the Competition Directive[104] provides that:

> *"Without prejudice to specific criteria and procedures adopted by Member States to grant rights of use of radio frequencies to providers of radio or television broadcast content services with a view to pursuing general interest objectives in conformity with Community law:*
>
> - *Member States shall not grant exclusive or special rights of use of radio frequencies for the provision of electronic communications services.*
> - *The assignment of radio frequencies for electronic communication services shall be based on objective, transparent, non-discriminatory and proportionate criteria."*

Radio Spectrum Policy Programme

A 1.41 On 15 February 2012, the European Parliament adopted, via a Decision[105], the five-year Radio Spectrum Policy Programme ("RSPP") which establishes a multi-annual radio spectrum policy programme for the strategic planning and harmonisation of the use of spectrum. The objective is to ensure the functioning of the internal market in the Union policy areas involving the use of spectrum, such as electronic communications, research, technological development and space, transport, energy and audiovisual policies.

A 1.42 Among other things, Article 5 of the RSPP, entitled "Competition", provides:

> "*1. Member States shall promote effective competition and shall avoid distortions of competition in the internal market for electronic communications services in accordance with Directives 2002/20/EC and 2002/21/EC.*
>
> *They shall also take into account competition issues when granting rights of use of spectrum to users of private electronic communication networks."*

[104] Commission Directive 2002/77/EC of 16 September 2002 on competition in the markets for electronic communications networks and services.
[105] Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme.

Policy Directions[106]

A 1.43 Section 12(4) of the 2002 Act provides that, in carrying out its functions, ComReg must have appropriate regard to policy statements, published by or on behalf of the Government or a Minister of the Government and notified to the Commission, in relation to the economic and social development of the State. Section 13(1) of the 2002 Act requires ComReg to comply with any policy direction given to ComReg by the Minister for Communications, Energy and Natural Resources ("the Minister") as he or she considers appropriate, in the interests of the proper and effective regulation of the electronic communications market, the management of the radio frequency spectrum in the State and the formulation of policy applicable to such proper and effective regulation and management, to be followed by ComReg in the exercise of its functions. Section 10(1)(b) of the 2002 Act also requires ComReg, in managing the radio frequency spectrum, to do so in accordance with a direction of the Minister under section 13 of the 2002 Act, while Section 12(1)(b) requires ComReg to ensure the efficient management and use of the radio frequency spectrum in accordance with a direction under Section 13.

A 1.44 The Policy Directions which are most relevant in this regard include the following:

Policy Direction No.3 on Broadband Electronic Communication Networks

A 1.45 ComReg shall in the exercise of its functions, take into account the national objective regarding broadband rollout, viz, the Government wishes to ensure the widespread availability of open-access, affordable, always-on broadband infrastructure and services for businesses and citizens on a balanced regional basis within three years, on the basis of utilisation of a range of existing and emerging technologies and broadband speeds appropriate to specific categories of service and customers.

Policy Direction No.4 on Industry Sustainability

A 1.46 ComReg shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry's position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected.

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

Policy Direction No.5 on Regulation only where necessary

A 1.47 Where ComReg has discretion as to whether to impose regulatory obligations, it shall, before deciding to impose such regulatory obligations on undertakings, examine whether the objectives of such regulatory obligations would be better achieved by forbearance from imposition of such obligations and reliance instead on market forces.

Policy Direction No.6 on Regulatory Impact Assessment

A 1.48 ComReg, before deciding to impose regulatory obligations on undertakings in the market for electronic communications or for the purposes of the management and use of the radio frequency spectrum or for the purposes of the regulation of the postal sector, shall conduct a Regulatory Impact Assessment in accordance with European and International best practice and otherwise in accordance with measures that may be adopted under the Government's Better Regulation programme.

Policy Direction No.7 on Consistency with other Member States

A 1.49 ComReg shall ensure that, where market circumstances are equivalent, the regulatory obligations imposed on undertakings in the electronic communications market in Ireland should be equivalent to those imposed on undertakings in equivalent positions in other Member States of the European Community.

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

A 1.50 ComReg shall ensure that, in its management of the radio frequency spectrum, it takes account of the interests of all users of the radio frequency spectrum.

General Policy Direction No.1 on Competition (2004)

A 1.51 ComReg shall focus on the promotion of competition as a key objective. Where necessary, ComReg shall implement remedies which counteract or remove barriers to market entry and shall support entry by new players to the market and entry into new sectors by existing players. ComReg shall have a particular focus on:

- market share of new entrants;
- ensuring that the applicable margin attributable to a product at the wholesale level is sufficient to promote and sustain competition;
- price level to the end user;

- competition in the fixed and mobile markets; and
- the potential of alternative technology delivery platforms to support competition.

Promotion of Competition

A 1.52 Section 12(2)(a) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at the promotion of competition, including:

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

A 1.53 Regulation 34(1) of S.I. No. 444 of 2022 provides that ComReg shall promote effective competition and avoid distortions of competition in the internal market when deciding to grant, amend or renew rights of use for radio spectrum for electronic communications networks and services in accordance with these Regulations.

Contributing to the Development of the Internal Market

A 1.54 Section 12(2)(b) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at contributing to the development of the internal market, including:

I. removing remaining obstacles to the provision of ECN, ECS and associated facilities at Community level;

II. encouraging the establishment and development of trans-European networks and the interoperability of transnational services and end-to-end connectivity; and

III. co-operating with electronic communications national regulatory authorities in other Member States of the Community and with the Commission of the Community in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of Community law in this field.

A 1.55 In so far as consolidating the development of the internal market is concerned, Regulation 17(2) of S.I. No. 444 of 2022 provides that in carrying out its tasks under these Regulations, ComReg shall, taking the utmost account of its objectives under section 12 of the Act of 2002 and Regulation 4, contribute to the development of the internal market by working with national regulatory authorities in other Member States, BEREC and the European Commission in a transparent manner to ensure the consistent application of the Directive.

Promotion of Interests of Users

A 1.56 Section 12(2)(c) of the 2002 Act requires ComReg, when exercising its functions in relation to the provision of electronic communications networks and services, to take all reasonable measures which are aimed at the promotion of the interests of users within the Community, including:

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

Technological Neutrality

A 1.57 Further to Regulation 4(5) of S.I. No. 444 of 2022, ComReg, in pursuit of the policy objectives referred to in paragraph (3), shall apply impartial, objective, transparent, non-discriminatory and proportionate regulatory principles by, inter alia —(c) applying European Union law in a technologically neutral fashion, to the extent that this is consistent with the achievement of the objectives set out in paragraph (3).

Regulatory Principles

A 1.58 Further to Regulation 4(5) of S.I. No. 444 of 2022, ComReg, in pursuit of the policy objectives referred to in paragraph (3), shall apply impartial, objective, transparent, non-discriminatory and proportionate regulatory principles by, inter alia: promoting regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods and through cooperation with each other, with BEREC, with the RSPG and with the European Commission:

- ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing ECN and ECS;
- promoting efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors and parties seeking access to diversify the risk of investment, while ensuring that competition in the market and the principle of non-discrimination are preserved,
- taking due account of the variety of conditions relating to infrastructure, competition, the circumstances of end-users and, in particular, consumers that exist in the various geographic areas within the State, including local infrastructure managed by individuals on a not-for-profit basis, and
- imposing ex-ante regulatory obligations only to the extent necessary to secure effective and sustainable competition in the interest of end-users where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled. BEREC

A 1.59 Under Regulation 4(4) of S.I. No. 444 of 2022, ComReg must:

- having regard to its objectives under section 12 of the 2002 Act and its tasks under these Regulations, actively support the goals of BEREC of promoting greater regulatory coordination and consistency; and
- take the utmost account of guidelines, opinions, recommendations, common positions, best practices and methodologies adopted by BEREC when adopting decisions for the markets in the State.

Other Obligations under the 2002 Act

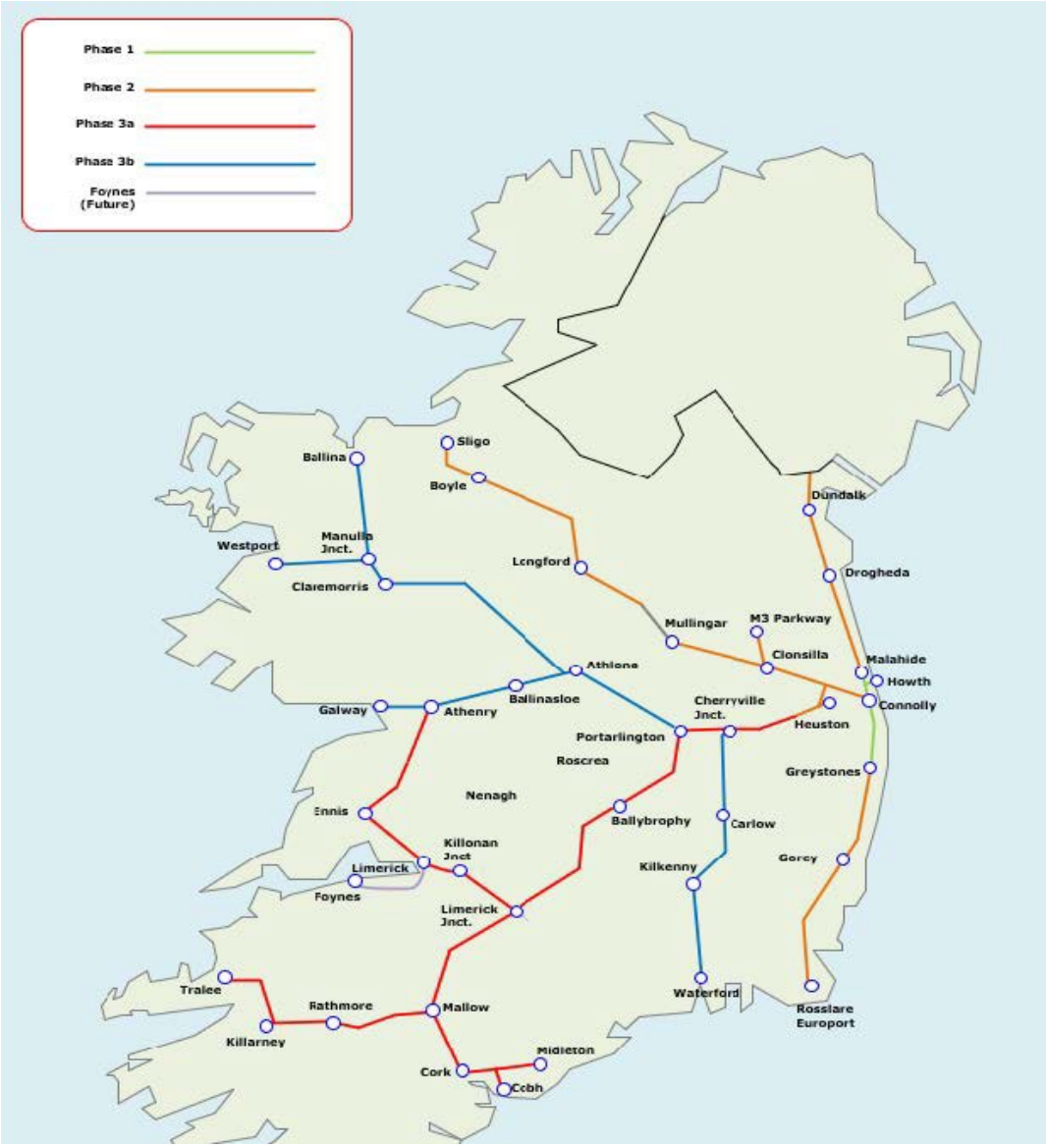
A 1.60 In carrying out its functions, ComReg is required, amongst other things, to:

- seek to ensure that any measures taken by it are proportionate having regard to the objectives set out in section 12 of the 2002 Act;[107]
- have regard to international developments with regard to the radio frequency spectrum[108]; and
- 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.[109]

[107] Section 12(3) of the 2002 Act.
[108] Section 12(5) of the 2002 Act.
[109] Section 12(6) of the 2002 Act.

Annex: 2 GSM-R Deployment Map

A 2.1 GSM-R deployment status in Ireland as of June 2024[110]



[110] https://transport.ec.europa.eu/document/download/85edc270-7b50-4736-9eaa-cbdb41a7f48d_en?filename=NIP_ERTMS_2024_IE.pdf

Annex: 3 Draft Licensing Regulations

A 3.1 **Any final version of these regulations, which would be made by ComReg under section 6 of the Wireless Telegraphy Act 1926, is expressly subject to the consent of the Minister for the Environment, Climate and Communications under section 37 of the Communications Regulation Act 2002, as amended.**

A 3.2 ComReg may make such editorial changes to the text of any final regulations as it considers necessary and without further consultation, where such changes would not affect the substance of the regulations.

STATUTORY INSTRUMENTS

S.I. No. of 2024

WIRELESS TELEGRAPHY (RAILWAY MOBILE RADIO LICENCE) REGULATIONS 2024

S.I. No. of 2024

WIRELESS TELEGRAPHY (RAILWAY MOBILE RADIO LICENCE) REGULATIONS 2024

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 6(1) of the Wireless Telegraphy Act 1926 (No. 45 of 1926) as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009), and with the consent of the Minister for the Environment, Climate and Communications (as adapted by the Communications, Climate Action and Environment (Alteration of Name of Department and Title of Minister) Order 2020 (S.I. No. 373 of 2020)) in accordance with section 37 of the Communications Regulation Act 2002 (No. 20 of 2002), hereby makes the following Regulations:

Citation

1. (1) These Regulations may be cited as the Wireless Telegraphy (Railway Mobile Radio Licence) Regulations 2024.

Interpretation and Definitions

2. (1) In these Regulations, except where the context otherwise requires:

"900 MHz band" means the paired frequency bands 874.4-880.0 MHz and 919.4-925.0 MHz;

"1900 MHz band" means the unpaired frequency band 1900-1910 MHz;

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

"Act of 1972" means the Wireless Telegraphy Act 1972 (No. 5 of 1972);

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

"Apparatus" means apparatus for wireless telegraphy as defined in section 2 of the Act of 1926;

"Base Station" means Apparatus connected to a backhaul network, which provides a Radiocommunication Service to RMR terminals using the 874.4-880.0 MHz, 919.4-925.0 MHz, and 1900-1910 MHz bands;

"Cab-Radio" means a RMR terminal installed on board the train capable of supporting voice and data applications;

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

"Consumer Price Index" or "CPI" means the consumer price index as published from time to time by the Central Statistics Office;

"Central Statistics Office" means the Central Statistics Office of Ireland or its successor;

"EECC Regulations" means the European Union (Electronic Communications Code) Regulations 2022 (S.I. No. 444 of 2022);

"Electronic Communications Network" and "Electronic Communications Service" have the meanings assigned to them in the EECC Regulations;

“equivalent isotropically radiated power (‘e.i.r.p.’)” means the product of the power supplied to the antenna and the absolute or isotropic gain in a given direction relative to an isotropic antenna;

“Frequency Band” means the 900 MHz or 1900 MHz bands;

“FRMCS” means Future Railway Mobile Communication System which is a successor of GSM-R that will support railway digitalisation and service innovation;

“GSM-R” means Global System for Mobile Communications – Rail;

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

“Infrastructure Manager” means any entity responsible for the operation, maintenance and renewal of railway infrastructure on a railway network, as well as responsible for participating in its development as determined by the Minister for Transport;

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

“Lessee” has the meaning set out in the Transfer and Lease Regulations;

“Lessor” has the meaning set out in the Transfer and Lease Regulations;

"Licence Fee" means the relevant fee as set out in Schedule 2 which applies to a Licence;

“Licence” means a non-exclusive licence granted in accordance with section 5 of the Act of 1926 in accordance with and subject to the matters prescribed in these Regulations to keep, have possession of, install, maintain, work and use Apparatus in a specified place in the State granted to the licensee;

“Licensee” means the holder of a Licence;

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

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

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

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

“railway network” means the entire railway infrastructure managed by an Infrastructure Manager;

“railway infrastructure” means the items listed in Schedule 1 of .I. No. 249/2015 - European Union (Regulation of Railways) Regulations 2015, as amended;

“Railway Mobile Radio” or “RMR” means GSM-R and its successor(s), including the FRMCS;

“Railway Mobile Radio Licence” or “RMR Mobile Radio Licence” means a non-exclusive Licence in the form set out in Schedule 1 granted under section 5 of the Act of 1926 to keep

and have possession of apparatus for a RMR Network in a specified place in the State in accordance with and subject to the terms and conditions contained in the Licence and the matters prescribed in these Regulations;

"Railway Mobile Radio Network" or "RMR Network" means a radio communication system using GSM-R and its successor(s), and FRMCS for the operation of a national railway network .

"Railway Mobile Radio Spectrum Lease Licence" or "RMR Spectrum Lease Licence" means a non-exclusive Licence in the form set out in Schedule 3 granted under section 5 of the Act of 1926 to keep and have possession of apparatus for a RMR Network in a specified place in the State in accordance with and subject to the terms and conditions contained in the Licence and the matters prescribed in these Regulations;

"Railway Mobile Radio terminal" or "RMR terminal" is an item of mobile radio equipment under the control of the RMR network;

"Transfer" has the meaning set out in the Transfer and Lease Regulations;

"Transfer and Lease Regulations" means the Wireless Telegraphy (Transfer and Lease of Individual Rights of Use For Radio Spectrum for the Provision of Electronic Communications Networks and Services) Regulations, 2024 (S.I. No. of 2024);

"Transferee" has the meaning set out in the Transfer and Lease Regulations;

"Transferor" has the meaning set out in the Transfer and Lease Regulations;

"Undertaking" means a person engaged or intending to engage in the provision of electronic communications networks or services or associated facilities;

"Wireless Telegraphy" has the same meaning as set out in section 2 of the Act of 1926.

(2) In these Regulations –

(a) a reference to a Regulation or a Schedule is to a Regulation of, or a Schedule to, these Regulations, unless it is indicated that reference to some other enactment is intended;

(b) a reference to a paragraph or subparagraph is to the paragraph or subparagraph of the provision in which the reference occurs unless it is indicated that reference to some other provision is intended;

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

(d) a word or expression that is used in these Regulations and that is also used in the EECC Regulations has, unless the context otherwise requires, the same meaning in these Regulations that it has in those Regulations.

Licences to which these Regulations apply

3. These Regulations apply to RMR Licences and RMR Spectrum Lease Licences.

Limitation of Licence

4. (1) 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, at a specified locations in the State, Apparatus for wireless telegraphy for the purpose of the provision of a RMR Network.

(2) Nothing in these Regulations shall absolve the Licensee from any requirement in law to obtain such additional approvals, consents, licences, permissions and authorisations that may be necessary for the discharge of the obligations or the exercise of entitlements under the Licence. The Licensee is responsible for all costs, expenses and other commitments, financial and non-financial, in respect of the Licence and the operation of a RMR Network and the Commission shall bear no responsibility for such costs, expenses or commitments.

(3) A RMR Licence or RMR Spectrum Lease Licence shall only be granted to an Infrastructure Manager for the provision of a national RMR Network.

Application for Licences and Form of Licences

5. (1) An application for a Licence will be made to the Commission and shall be in writing in such form as may be determined by the Commission.

(2) A person who makes an application under paragraph (1) of this Regulation shall furnish to the Commission such information as the Commission may reasonably require for the purpose of assessing the application and carrying out its functions under the Act of 1926, the Act of 2002 and the EECC Regulations and, if the person, without reasonable cause, fails to comply with this paragraph, the Commission may refuse to grant a Licence to the person.

(3) The grant of a Licence is subject to payment of the prescribed fee as set out in Schedule 2 to these Regulations.

Duration of Licences

6. (1) All RMR Licences shall expire in full at midnight on 27 November 2045, no RMR Licence shall be renewed nor shall any RMR Licence remain in effect following the expiry date and all rights and entitlements under all RMR Licences, including all spectrum rights of use, shall cease altogether as and from the expiry date. A RMR Licence granted on foot of a Transfer shall expire no later than the expiry date of the Licence of the relevant Transferee.

Conditions of Licences

7. (1) It shall be a condition of a Licence that:

(a) the Licensee shall comply with these Regulations and the conditions attached to the Licence;

(b) the Licensee shall ensure that the Apparatus is used only on such radio frequency spectrum as may be specified in the Licence and such radio frequencies shall be used in an efficient manner;

(c) the Licensee shall make payments of the fees as set out in Schedule 2 to these Regulations, and in accordance with Regulation 9 of these Regulations;

(d) the Licensee shall request the Commission to consider and decide on an amendment to the licence to reflect any proposed changes to the information contained in the Licence;

(e) the Licensee shall furnish such information and reports in respect of the Licence, including relating to the Apparatus and its use as may be requested by the Commission from time to time;

(f) The Licensee shall submit to the Commission information detailing the location(s) and technical information of deployed Apparatus under Parts 3 and 4 of the licence within 30 days of each anniversary of the commencement of the Licence, in a format as may be determined by the Commission;

(g) the Licensee shall ensure that the Apparatus, or any part thereof, shall be installed, maintained, operated and used so as not to cause Harmful Interference;

(h) the Licensee shall ensure compliance with any special conditions imposed under section 8 of the Act of 1972 and subject to which this Licence is deemed by subsection (3) of that section to be issued;

(i) the Licensee shall ensure that, save as may be required by law, access to, and use of, the Apparatus is restricted to the Licensee, employees or agents of the Licensee, and persons authorised by or on behalf of the Licensee;

(j) where the Commission is satisfied that a Licensee has failed to comply with any provision of these Regulations or a condition of the Licence, and the Commission has served on the Licensee a written notice prohibiting the use of Apparatus by such date and time as may be specified in the notice, then the Licensee will cease to use that Apparatus on or before the applicable date and time until such notice has been withdrawn by the Commission, and the Licensee shall take such measures as may be specified by the Commission in the notice;

(k) the Licensee shall upon becoming aware of any event likely to materially affect their ability to comply with these Regulations, or any conditions set out or referred to in the Licence, notify the Commission of that fact in writing within 5 working days;

(l) the Licensee shall on request from an authorised officer of the Commission permit the inspection of the Apparatus, enable access to the site or sites on which the Apparatus is located and produce the associated Licence for inspection;

(m) the Licensee shall use the spectrum rights of use granted exclusively for the operation and functioning of the Licensee's RMR Network;

(n) the Licensee shall comply with all obligations under relevant international agreements relating to the use of apparatus or the frequencies to which they are assigned; and

(o) ensure that all apparatus, or any part thereof, complies with the Radio Equipment Regulations.

Enforcement, Amendment, Withdrawal and Suspension

8. (1) Enforcement by the Commission of compliance by a Licensee with conditions attached to their Licence shall be in accordance with the EECC Regulations and the Communications Regulation and Digital Hub Development Agency Act 2023, and any other requirements under applicable national or European Community law.

(2) The Commission may amend the Licence from time to time where objectively justifiable and in a proportionate manner. Any amendment shall be made subject to and in accordance with the EECC Regulations, and any other requirements under applicable national or European Union law.

(3) Without prejudice to paragraph (2) of this Regulation, at the request of the Licensee, the Commission may, if it considers it appropriate to do so, amend the Licence by adding to, deleting from or altering the radio frequency spectrum specified in the Licence on which the Apparatus may be used. Any such amendment shall be effected by notice in writing from the Commission specifying the amendment and given to the Licensee or sent to the Licensee at the address specified in the Licence or notified to the Commission pursuant to the Licence.

(4) A Licence may be suspended or withdrawn by the Commission in accordance with the EECC Regulations, and any other requirements under applicable national or European Community law.

Spectrum Transfers and Leases

9. (1) The licensee shall notify the Commission of its intention to Transfer or Lease any rights of use for radio frequencies attaching to a licence in accordance with the Transfer and Lease Regulations.

(2) The licensee may only Transfer or Lease the rights of use for radio frequencies attaching to a licence in accordance with the Transfer and Lease Regulations.

(3) The Commission may grant a licence to a Transferee in accordance with the Transfer and Lease Regulations.

(4) The Commission may grant a RMR Spectrum Lease Licence to a Lessee in accordance with the Transfer and Lease Regulations.

(5) A RMR Spectrum Lease Licence to which these Regulations apply shall be in the form specified in Schedule 3, with such variation, if any, whether by addition, deletion or alteration as the Commission may determine from time to time or in any particular case in accordance with the EECC Regulations.

(6) The commencement date and expiry date of a RMR Spectrum Lease Licence shall be set by the Commission with reference to the commencement date and expiry date of the relevant Lease and shall be specified in the RMR Spectrum Lease Licence. A RMR Spectrum Lease Licence to which these Regulations apply shall in any event expire on or before the expiry date of the Licence of the relevant Lessor.

(7) A RMR Spectrum Lease Licence may be revoked, suspended or withdrawn by the Commission in accordance with the EECC Regulations, including if the associated Licence of the relevant Lessor has been revoked, suspended or withdrawn under these Regulations.

Licence Fees

10. (1) Fees as set out and provided for in the fees table in Schedule 2 are hereby prescribed in relation to Licences for the purpose of section 6 of the Act of 1926, as amended.

(2) The fees set out and provided for in Schedule 2 shall be payable by the Licensee to the Commission on the date of first granting of a Licence and thereafter annually on or before each anniversary of the date of first granting of a Licence.

(3) Fees shall be paid to the Commission by way of Electronic Funds Transfer or such other means, and on such terms (including terms as to the place of payment) as the Commission may decide. Where the date of payment falls on a Saturday, a Sunday or a public holiday, payment shall be made on or before the last working day before the date of payment.

(4) If a Licence is suspended or withdrawn, the Licensee may be entitled to a refund on a pro rata monthly basis for the remaining period of the Licence of the relevant fee.

(5) If a Licence is suspended or withdrawn due to a finding by the Commission of non-compliance with any relevant licence conditions, the Licensee shall not be entitled to be repaid any part of the fee paid by the Licensee, but shall still be liable to pay any sums, including interest, that are outstanding.

(6) Failure by a Licensee to pay part or all of a fee required under this Regulation on or before the date it falls due shall constitute non-compliance by the Licensee concerned with these Regulations, and the Commission, in respect of such non-payment of a fee, may take enforcement action in accordance with Regulation 8 and may take steps to recover the amount due in accordance with paragraphs 7 and 8 of this Regulation.

(7) Where a fee or part of a fee is not paid in time, the Licensee concerned shall pay to the Commission interest on the fee or part thereof that was or is outstanding. Interest shall accrue from the date when such fee or part thereof fell due until the date of payment of such fee or part thereof and shall be calculated at the same rate payable in respect of late payments in commercial transactions pursuant to the European Communities (Late Payment in Commercial Transactions) Regulations 2012 (S.I. No. 580 of 2012), as amended.

(8) Any fee payable and owed by a Licensee under this Regulation may be recovered by the Commission from the Licensee as a simple contract debt in any court of competent jurisdiction.

(9) The fees will be implemented in accordance with Schedule 2.

SCHEDULE 1

WIRELESS TELEGRAPHY ACT, 1926

WIRELESS TELEGRAPHY (RAILWAY MOBILE RADIO LICENCE) REGULATIONS, 2024

Part 1

Licence Number: .....

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5(1) of the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009), grants to the Licensee specified, authorisation to keep, have possession of, install, maintain, work and use Apparatus for RMR Networks as specified in Parts 3 and 4 of this Licence subject to the Licensee observing the terms and conditions and restrictions as prescribed by the Wireless Telegraphy (Railway Mobile Radio Licence) Regulations, 2024 (S.I. of 2024).

Licensee: .....

Address: .....

Commencement and Termination Dates (if applicable):

The Licence comes into effect on ***DD/MM/YY*** and, subject to withdrawal or suspension, expires on 27 November 2045.

Signed: .....

on behalf of the Commission for Communications Regulation

Date: .....

Part 2

Frequency assignment	Commencement Date	Expiry Date

Part 3

The Apparatus to which this Licence applies

Equipment Index Reference	Equipment Description	Manufacturer	Model

Part 4

Centre Frequency (MHz)	Bandwidth (kHz)	Site Identity	Latitude (decimal degrees)	Longitude (decimal degrees)	Equipment Index Reference	EIRP (dBm)

SCHEDULE 2

Part 1

FEES PAYABLE IN CONNECTION WITH LICENCES

The annual fee payable for a RMR Licence ("Licence Fee") is equal to the fee for that RMR Licence in the base year of 2024 (the "Base Fee"), indexed to the annual rate of inflation since 2024 using the Consumer Price Index. The inflation adjustment is set in the following formula as follows:

$$Indexing\ Multiplier = \frac{CPI_t}{CPI_{2024}} * 100$$

Where CPI_t represents the 12-month Consumer Price Index figures published by the Central Statistics Office, for year *t*, the year immediately preceding the application. CPI_{2024} represents the 12-month Consumer Price Index figures published by the Central Statistics Office for 2024. The first indexation shall take place on the 1st of August 2025 and shall occur annually thereafter on that same date.

The annual fee indexed to the Consumer Price Index is equal to:

C = A x B

Where:

- A is the base fee for an annual Licence; and
- B is the CPI adjustment for the relevant period.

The Base Fees for a RMR Licence are set out in table 1 and table 2 below.

Table 1: Base Fee for a RMR Licence in the 900 MHz Frequency Band

Frequency Band	**Base Fee for per MHz (to be adjusted for CPI)**
900 MHz	€28,005

Table 2: Base Fee for a RMR Licence in the 1.9 GHz RMR Frequency Band

Frequency Band	**Base Fee per MHz (to be adjusted for CPI)**
1.9 GHz RMR	€14,733

Part 2

TECHNICAL CONDITIONS OF LICENCE

Section 1: Technical conditions for GSM-R in 874.4-880.0 MHz and 919.4-925.0 MHz bands

For GSM-R, the following parameters apply:

- GSM-R Downlink centre frequency f_{DL} = 921 MHz + n×0.2 MHz where $\{n \in \mathbb{Z} \mid -7 \leq n \leq 19\}$;
- GSM-R Uplink centre frequency $f_{UL} = f_{DL}$ – 45 MHz; and
- GSM-R channel bandwidth is 200 kHz.

Table 2: In-block requirements for GSM-R Base Stations in 919.4-921 MHz uncoordinated deployment

GSM-R channel bandwidth	Maximum e.i.r.p.
200 kHz	= 70.5 dBm + (f_{DL} – 921)×40/3 dB
f_{DL} is the centre frequency in MHz There is no e.i.r.p. restriction on GSM-R Base Stations transmitting in the 921-925 MHz frequency band. Formula applicable to $f_{DL} \leq 921$ MHz. To allow higher e.i.r.p, the implementation of a coordination procedure or other mitigation measures must be applied.	

Section 2: Technical conditions for a single wideband RMR carrier in 874.4-880.0 MHz and 919.4-925.0 MHz bands

Technical conditions for RMR Base Stations using wideband technologies

The technical conditions defined in this section are in the form of a block-edge mask (BEM) applicable to wideband RMR Base Stations. The technical conditions defined in this section are valid for a single RMR carrier using wideband technologies. Base Stations using active antenna systems are prohibited.

For radio access technologies other than GSM-R, the following parameters apply:

- The lower edge of the lowest Resource Block shall be ≥ 919.6 MHz.

Table 3: General in-block requirement

RMR channel bandwidth	Maximum e.i.r.p.
For any channel bandwidth	The following value may be used in case an upper bound is desired: = Min {65 dBm/channel, Maximum e.i.r.p. specific to the channel bandwidth}

Table 3: Specific in-block requirements for 5.6 MHz and 5 MHz channels mandatory for uncoordinated deployment

RMR channel bandwidth	Maximum e.i.r.p.
5.6 MHz	= 62 dBm/5.6 MHz
5 MHz	= 64.5 dBm/5 MHz + (f_{DL} – 922.1)×40/3 dB
f_{DL} is the centre frequency in MHz. NB-IoT in-band operation mode without power boost is allowed. NB-IoT guard-band operation mode and in-band operation mode with power boost are not allowed.	

Table 4: Specific in-block requirements for 1.4 MHz and 200 kHz channels mandatory for uncoordinated deployment

RMR channel bandwidth	Maximum e.i.r.p.
1.4 MHz	= 56 dBm/1.4 MHz + (f_{DL} – 920.2)×40/3 dB (Note 1)
200 kHz (Note 2)	= 70.5 dBm/200 kHz + (f_{DL} – 921)×40/3 dB (Note 3)
f_{DL} is the centre frequency in MHz. Note 1: Formula applicable to $f_{DL} \leq 921.7$ MHz. No specific e.i.r.p. restriction above. Note 2: Applicable to NB-IoT standalone operation mode, which is made of one Resource Block. Note 3: Formula applicable to $f_{DL} \leq 921.0$ MHz. No specific e.i.r.p. restriction above	

Table 5: Out-of-band requirements

MHz from block edge (919.4-925 MHz)	e.i.r.p. limit
$0 \leq \Delta f < 0.2$	32.5 dBm/200 kHz
$0.2 \leq \Delta f < 1$	14 dBm/800 kHz
$1 \leq \Delta f < 10$	5 dBm/MHz

Table 6: Baseline requirement

Frequency range	e.i.r.p. limit
880-915 MHz	-49 dBm/5 MHz
This requirement prevails over out-of-band requirements.	

Technical conditions for RMR cab-radio using wideband technologies

For radio access technologies other than GSM-R, the following parameters apply:

- Maximum output power: higher than 23 dBm and up to 31 dBm;
- Adjacent Channel Leakage power Ratio ("ACLR"): 37 dB minimum; and
- Uplink power control is mandatory and shall be activated.

Technical conditions for RMR terminals other than cab-radios, using wideband technologies

For radio access technologies other than GSM-R, the following parameters apply:

- Maximum output power: 23 dBm;
- ACLR: 30 dB minimum;
- Uplink power control is mandatory and shall be activated.

Technical conditions for RMR receivers using wideband technologies

The 874.4-880.0 MHz and 919.4-925.0 MHz bands can be accessed if techniques to access spectrum and mitigate interference that provide an appropriate level of receiver performance to comply with the essential requirements of Directive 2014/53/EU are used. Where relevant techniques are described in harmonized standards or parts thereof the references of which have been published in the Official Journal of the European Union in accordance with Directive 2014/53/EU, performance at least equivalent to the performance level associated with those techniques shall be ensured.

Table 7: Requirements on wideband RMR Base Station receiver characteristics

Parameter	Value
Level of the wanted signal	RefSens + 3 dB
Maximum interfering signal in 870-874.4 MHz (Note 1)	-34 dBm
The antenna connector of the radio module is the reference point. The reference sensitivity (RefSens) is the minimum mean power received at the antenna connector at which a specified minimum performance shall	

be met. These requirements cover both blocking and third-order intermodulation. Note 1: A bandwidth of 200 kHz for the interfering signal is assumed.

Table 8: Requirements only for wideband RMR cab-radio receiver characteristics

Parameter	Value
Level of the wanted signal	RefSens + 3 dB
Maximum interfering signal in 880-918.9 MHz (Note 1)	-26 dBm
Maximum continuous wave interfering signal in 925.6-927 MHz	-13 dBm
Maximum continuous wave interfering signal in 927-960 MHz	-10 dBm
Maximum 5 MHz LTE interfering signal (lowest carrier at 927.6 MHz)	-13 dBm
The antenna connector of the radio module is the reference point. The reference sensitivity (RefSens) is the minimum mean power received at the antenna connector at which a specified minimum performance shall be met. These requirements cover both blocking and third-order intermodulation. Requirements for RMR terminal receiver other than cab-radio are not covered in this table. Note 1: A bandwidth of 400 kHz for the RFID interfering signal is assumed.	

Section 3: Technical conditions for wideband RMR in 1900-1910 MHz (TDD) band

Technical conditions for RMR Base Stations using wideband technologies

The technical conditions defined in this section are in the form of a block-edge mask (BEM) applicable to wideband RMR Base Stations. The BEM is developed on the basis that detailed coordination and cooperation agreements would not be required to be in place prior to network deployment. Base Stations with active antenna systems are prohibited.

The following parameters apply:

Table 9: General in-block requirement mandatory for uncoordinated deployment

RMR channel bandwidth	Maximum e.i.r.p.
10 MHz	= 65 dBm/10 MHz

Table 10: Baseline requirement

Frequency range	e.i.r.p. limit
1920-1980 MHz	-43 dBm/5 MHz

Technical conditions for RMR cab-radio using wideband technologies

The following parameters apply:

- Maximum output power: 31 dBm;
- ACLR: 37 dB minimum;
- Unwanted output power in 1920-1980 MHz:
  - -25 dBm/MHz maximum in 1920-1925 MHz; and
  - -30 dBm/MHz maximum in 1925-1980 MHz.
- Uplink power control is mandatory and shall be activated.

Technical conditions for RMR terminals other than cab-radios, using wideband technologies

The following parameters apply:

- Maximum output power: 23 dBm;
- ACLR: 30 dB minimum; and
- Uplink power control is mandatory and shall be activated.

Technical conditions for RMR receivers using wideband technologies

The 1900-1910 MHz band can be accessed if techniques to access spectrum and mitigate interference that provide an appropriate level of receiver performance to comply with the essential requirements of Directive 2014/53/EU are used. Where relevant techniques are described in harmonized standards or parts thereof the references of which have been published in the Official Journal of the European Union in accordance with Directive 2014/53/EU, performance at least equivalent to the performance level associated with those techniques shall be ensured.

Table 11: Requirements on wideband RMR Base Stations receiver characteristics

Parameter	Value
Level of the wanted signal	RefSens + 3 dB

Maximum 5 MHz LTE interfering signal in 1805-1880 MHz	-20 dBm
The antenna connector of the Base Station receiver is the reference point. The reference sensitivity (RefSens) is the minimum mean power received at the antenna connector at which a specified minimum performance shall be met. These requirements cover both blocking and third-order intermodulation.	

Table 12: Requirements only for wideband RMR cab-radio receiver characteristics

Parameter	Value
Level of the wanted signal	RefSens + 3 dB
Maximum 5 MHz LTE interfering signal in 1805-1880 MHz	-13 dBm
Maximum 5 MHz LTE interfering signal in 1920-1980 MHz	-39 dBm
The antenna connector of the Base Station receiver is the reference point. The reference sensitivity (RefSens) is the minimum mean power received at the antenna connector at which a specified minimum performance shall be met. Requirements for RMR terminal receiver other than cab-radio are not covered in this table. These requirements cover both blocking and third-order intermodulation.	

SCHEDULE 3

WIRELESS TELEGRAPHY ACT, 1926

WIRELESS TELEGRAPHY (RAILWAY MOBILE RADIO LICENCE) REGULATIONS, 2024

RMR Railway Spectrum Lease Licence granted under section 5 of the Wireless Telegraphy Acts 1926 to 2009 to keep and have possession of Apparatus for RMR Networks

Part 1

Licence Number: .....

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5(1) of the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009), grants to the Licensee specified, authorisation to keep, have possession of, install, maintain, work and use Apparatus for RMR Networks as specified in Parts 3 and 4 of this Licence subject to the Licensee observing terms and conditions and restrictions as prescribed by the Wireless Telegraphy (Railway Mobile Radio Licence) Regulations, 2024 (S.I. of 2024). The Licence Conditions will be specified by the Commission in accordance with the Transfer and Lease Regulations.

Licensee: .....

Address: .....

Commencement and Termination Dates (if applicable):

The Licence comes into effect on ***DD/MM/YY*** and, subject to withdrawal or suspension, expires on 27 November 2045.

Signed: .....

on behalf of the Commission for Communications Regulation

Date: .....

Part 2

Frequency assignment	Commencement Date	Expiry Date

Part 3

The Apparatus to which this Licence applies

Equipment Index Reference	Equipment Description	Manufacturer	Model

Part 4

Centre Frequency (MHz)	Bandwidth (kHz)	Site Identity	Latitude (decimal degrees)	Longitude (decimal degrees)	Equipment Index Reference	EIRP (dBm)

GIVEN under the Official Seal of the Commission for Communications Regulation,

Commissioner.

The Minister for the Environment, Climate and Communications (as adapted by the Communications, Climate Action and Environment (Alteration of Name of Department and Title of Minister) Order 2020 (S.I. No. 373 of 2020)), in accordance with section 37 of the Communications Regulation Act, 2002 , consents to the making of the foregoing Regulations.

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

Minister for the Environment, Climate and Communications.

EXPLANATORY NOTE

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

These Regulations provide for the grant of Licences for Apparatus for RMR Networks for the regulation of such Apparatus, and for the payment of fees by persons granted Licences for that Apparatus.