REPORT ON THE REGULATORY IMPACT ASSESSMENT OF THE ORDER APPROVING THE NATIONAL FREQUENCY ALLOCATION TABLE (CNAF)

Proposing ministry/body	Ministry for Digital Transformation and the Civil Service. State Secretariat for Telecommunications and Digital Infrastructure.	Date	
Title of the regulation	Draft order approving the National Frequency Allocation Table (CNAF).		
Type of Report	Normal ☒ Abbreviated ☐		
TIMELINESS OF THE PROPOSAL			
Subject	This order implements the provisions of Article 6 of the Implementing Regulation of Law 11/2022 of 28 June 2022, the General Telecommunications Law, in relation to the use of the public radio spectrum, approved by Royal Decree 123/2017 of 24 February 2017, which stipulates that, by ministerial order, the conditions for the planning of the public radio spectrum shall be established, for which purpose the National Frequency Allocation Table (hereinafter CNAF) shall be approved for the various types of radio communication services, in accordance with the provisions of the EU, the European Conference of Postal and Telecommunications Administrations (CEPT) and the Radio Regulations of the International Telecommunication Union (ITU), defining the allocation of frequency bands and other technical characteristics deemed necessary. The order approves a new CNAF, which replaces the current one approved by Order ETD/1449/2021 of the then Ministry of Economic Affairs and Digital Transformation (ETD) of 16 December 2021, as amended by Order ETD/625/2023 of the then Ministry of Economic Affairs and Digital Transformation of 12 June 2023. This new CNAF additionally incorporates the forecasts approved during the last World Radiocommunication		

	Conference in 2023, forecasts that mostly entered into force on 1 January 2025. It also incorporates technical conditions for use of the radio spectrum that are the result of continuous technological progress in the sector, as well as new uses and applications, on the basis of decisions and recommendations of competent international bodies of which Spain is a member.
Main alternatives considered	Given the amendments and new developments introduced in the new CNAF, in particular those arising from the last ITU World Radiocommunication Conference (WRC-2023), the Implementing Decisions adopted by the European Commission, recent CEPT Decisions and Recommendations and their updates, as well as other national requirements, it is necessary to publish a new edition of the CNAF to replace the current one.
CONTENT AND LEGAL ANALYSIS	
Type of regulation	Order
Structure of the regulation	The order consists of an introductory section setting out the general principles of the CNAF and its legal basis in Law 11/2022 of 28 June 2022, the General Telecommunications Law, and Royal Decree 123/2017 of 24 February 2017, which implements Law 11/2022, regarding the use of the public radio spectrum. Next, the enacting terms consist of a single article, together with two additional provisions, one repealing provision and two final provisions. These are followed by an annex, which is the actual CNAF technical text. This annex consists of an introductory section explaining the terms used, such as spectrum usage categories and radio services, among other technical parameters; this section is followed by the notes to Article 5 of the ITU Radio Regulations (RR notes). Then come the frequency allocation tables for radio communication services in the three regions into which the world has been divided for this purpose; alongside the global allocations, the national frequency allocations are also indicated. After the frequency allocation tables, the UN notes for

	national use are inserted, numbered 0 to 170, plus the CEPT, EU, NATO and radio easement notes. Finally, the relevant charts and diagrams illustrating the channelling and/or organisation of the various frequency bands are included.
Reports to be collected	- State Counsel. - National Commission for Markets and Competition (CNMC). - Jurisdiction report. Ministry of Territorial Policy. - Ministry of Economy, Trade and Business (MINECO) Technical General Secretariat. - Ministry of Defence. - Ministry of the Interior. - Ministry of Transport, Mobility and Urban Agenda.
Hearing procedure	Prior to the creation of this draft legislation, the public consultation provided for in Article 133(1) of Law 39/2015 of 1 October 2015 on the Common Administrative Procedure of Public Administrations was conducted via the web portal of the Ministry for Digital Transformation and the Civil Service (between 10 June and 26 June 2025). Once this draft legislation has been drawn up, it will be published on the website of the Ministry for Digital Transformation and the Civil Service, to provide a hearing for citizens affected, in accordance with the provisions of Article 133(2) of Law 39/2015 of 1 October 2015 on the Common Administrative Procedure of Public Administrations. (Between 30 September and 30 October 2025). A specific public consultation on interest in the 3 800–4 200 MHz and 1 900–1 920 MHz bands was also held between 25 October 2025 and 25 November 2025. Annex 1 to this report provides a summary of the comments received during the public consultation process and the responses given to them. Said Annex also includes the submissions from the National Commission for Markets and Competition (CNMC), the Ministry of Defence and the Ministry of Transport, Mobility and Urban Agenda, as well as the responses to those

	submissions.	
IMPACT ANALYSIS		
COMPLIANCE WITH THE DISTRIBUTION OF POWERS	The order is issued under the exclusive State competence in the field of telecommunications, provided for in Article 149(1.21) of the Constitution.	
ECONOMIC AND BUDGETARY IMPACT	Effects on the economy in general	The regulation has no significant impact on competition.
	With regard to competition:	☐ the regulation has no significant impact on competition. ☒ the regulation has positive effects on competition. ☐ the regulation has negative effects on competition.
	With respect to administrative burdens:	☐ it entails a reduction in administrative burdens. ☐ estimated quantification (see attached report). ☐ it incorporates new administrative burdens. ☒ it does not affect administrative burdens.
	With respect to budgets, the regulation: ☒ does not affect the budgets of Public Administrations. ☐ affects the budgets of the State Administration. ☐ affects the budgets of other regional administrations.	☐ entails an expense. ☐ entails an income a reduction in expenditure
GENDER IMPACT	The regulation has the	Negative ☐

	following gender impact:	None ☒ Positive ☐

A. TIMELINESS OF THE PROPOSAL.

1. RATIONALE.

- **Reasons for the proposal**

The National Frequency Allocation Table (hereinafter CNAF), a cornerstone of spectrum management in Spain, is a document that requires constant updating – generally as a result of the activities of the international regulatory bodies to which Spain belongs – due to the regulatory and highly technical nature of the information it contains regarding the use of the radio spectrum. These organisations, which are primarily the ITU (International Telecommunication Union), the CEPT (European Conference of Postal and Telecommunications Administrations), the EU (European Union) and the ETSI (European Telecommunications Standards Institute), adopt regulations, decisions, recommendations and other provisions generally aimed at harmonising the use of the radio spectrum.

This new CNAF incorporates the provisions adopted at the last World Radiocommunication Conference held in 2023, most of which came into force on 1 January 2025. It also incorporates technical conditions for use of the radio spectrum that are the result of continuous technological progress in the sector, as well as new uses and applications, on the basis of decisions and recommendations of competent international bodies of which Spain is a member.

Furthermore, account has been taken of the needs of Spanish industry and the telecommunications sector in general, as well as the requirements of new systems and devices that are emerging, whether as replacements for other technologies or as new devices or equipment, operating at specific frequencies and with specific characteristics.

In this regard, the CNAF provides significant assistance and support to the industry by offering guidance on how to shape its projects and short- and medium-term prospects, helping it to determine the direction of its business development and investment.

Generally speaking, it can be said that most of these changes stem from constant technological developments in the field of radio communications, which drives the introduction of new communication services and new technologies that are increasingly efficient, both in terms of spectrum utilisation and the services offered to users.

There are also other requirements, such as the need to increase the frequency bands available for certain services in order to meet the ever-growing demand for frequencies.

■ The CNAF and the General Telecommunications Law

Article 85 of Law 11/2022 of 28 June 2022, the General Telecommunications Law (hereinafter LGT), states that the management, administration and control of the public radio spectrum are the responsibility of the State; under the current structure, this falls to the Ministry for Digital Transformation and the Civil Service.

Article 6 of Royal Decree 123/2017 of 24 February 2017 approving the Implementing Regulation of Law 11/2022 of 28 June 2022, the General Telecommunications Law, stipulates in relation to the use of the public radio spectrum that, in order to achieve coordinated and effective use of the public radio spectrum, the Minister for Energy, Tourism and the Digital Agenda, now the Ministry for Digital Transformation and the Civil Service, shall approve the National Frequency Allocation Table (CNAF) for the different types of radio communications services, defining the allocation of the corresponding radio frequency bands, sub-bands, frequencies and channels, as well as any other technical characteristics that may be necessary.

■ The CNAF and the ITU: the Radio Regulations and the World Radiocommunication Conferences.

The International Telecommunication Union (ITU), of which Spain is a member, regularly publishes and updates the table of frequency allocations for the various radiocommunication services, currently set out in Article 5 of the Radio Regulations (RR), which are binding on all member countries – currently 193. National frequency allocation tables must specify the particular characteristics of the use of the various frequency bands in each country, while always complying with the allocations to services in accordance with the aforementioned Article 5 of the RR.

The Radio Regulations (RR) are amended following World Radiocommunication Conferences (WRC).

The ITU World Radiocommunication Conference 2023 (WRC-2023) was held recently.

This global conference led to substantial updates to the Radio Regulations published by the ITU, affecting several bands in the allocation table. At present, the current edition of the CNAF in Spain is from 2021, with partial revisions and amendments in 2023; an update is therefore required, among

other reasons, to incorporate the amendments from the aforementioned WRC-2023 conference.

■ The CNAF and decisions of the European Commission

At European Union level, the Radio Spectrum Committee – which comprises representatives from the European Commission and EU Member States – discusses and adopts measures aimed at harmonising spectrum use across different frequency bands. These measures are established by Commission decisions. The provisions of these decisions are transferred to the CNAF, with a list of all the implementing decisions included in a note.

■ The CNAF and the CEPT

CEPT Decision ERC/DEC(97)01 on the publication of national frequency allocation tables entered into force on 1 January 1998 and this Decision has been adopted by Spain.

According to this document, the CEPT administrations will publish their respective frequency allocation tables and undertake to review them whenever necessary in order to update their information.

In order to provide access to national frequency allocation tables and the common European table, the European Communications Office (ECO) has developed a software application called EFIS, which serves as a harmonised portal for the submission of information at European level regarding national frequency allocation tables, radio interfaces and rights of use for the radio spectrum. In this regard, Spain's CNAF has been available on the EFIS application since its launch. The new CNAF, in a format suitable for publication on EFIS, will be provided to ECO once the new edition has been approved, so that its content can be updated in the ECO EFIS database, as the information currently contained therein is from the 2021 CNAF.

■ Key changes and new inclusions following the results of WRC-23

- Update of the frequency allocation tables to reflect the changes adopted as a result of WRC 2023.

- Update of the notes to the Radio Regulations (RR notes) following the amendments resulting from the 2023 World Radiocommunication Conference.

- Updates deriving from new European Commission decisions and CEPT decisions incorporated into the CNAF.

- Updates to national and European regulations that have been amended or revised.

- Notes UN-60 and UN-130 have been deleted as redundant.

- Update to Note UN-40 regarding extension of the 876–880 MHz and 921–925 MHz ranges, which were previously used exclusively for the European GSM-R railway communications system, which now uses 874.4–880 and 919.4–925 MHz due to the forthcoming introduction of the new railway communications system (FRMCS). This extension is to enable the transition from the current communications system used on railways (GSM-R) to the new system to be implemented for these communications (FRMCS).

- Previous versions of UN-45, -46, -48 and -107 included dates that have now passed, and have therefore been updated to ensure that the transition processes to which they refer have been completed.

- Update to Note UN-50, due to the fact that the number of channels allocated to electronic news gathering links has been reduced in order to increase the frequency range available for the terrestrial broadband mobile service and the self-provisioned point-to-multipoint fixed service, so that this range can accommodate channels with greater bandwidth. The ranges are as follows: the 2 352.5–2 392.5 MHz range, which is allocated to fixed and mobile terrestrial broadband networks on a non-exclusive basis; and the 2 382.5–2 392.5 MHz range, in which networks dedicated to the management of public electricity, gas or water distribution services have priority, this range is also allocated to the terrestrial point-to-multipoint fixed service for management of the aforementioned public services. And the 2 392.5–2 400.5 MHz range for private communications over the aeronautical mobile service from unmanned aircraft systems (UAS).

- Amendment of UN-61 to allow more fixed service links to be hosted in the frequency band to which it refers (10 to 10.7 GHz), as there is currently space available within the sub-band used for ENG radio links.

- Notes UN-64, -79, -91, -93 and -162 now include the option to combine adjacent channel blocks to allow the use of wider channels, as this option

has been made possible by changes to the ITU (International Telecommunication Union) recommendations set out in those notes.

- Amendment to Note UN-86 to bring the frequency table contained therein into line with the latest version of Annex 6 to ERC/REC 70-03.

- Update to UN-114 regarding the permitted frequency bands for the operation of low-power inductive loop devices for applications in automatic tagging systems, access control, anti-theft devices, proximity detectors, animal and object identification, hearing aids and very low-power active medical implants based on these techniques, among other similar applications listed in the aforementioned UN note. The following frequency ranges have been introduced since the previous version: 9–59.75 kHz, 59.75–60.25 kHz, 60.25–74.75 kHz, 74.75–75.25 kHz, 75.25–77.25 kHz, 77.25–77.75 kHz, 77.75–90 kHz, 119–128.6 kHz, 128.6–129.6 kHz, 129.6–135 kHz, 7 400–8 800 kHz.

- Amendment of notes UN-133, -145 and -160 to incorporate the frequency ranges designated in Decision ECC/DEC(22)03 of the CEPT Electronic Communications Committee – ECC) for use by the different types of radar, whether for automotive radars, tank level probing radar (TLPR) devices or industrial radars for sounding applications, also incorporating the references to these UN notes into the table for the corresponding frequencies.

- Update to Note UN-151 regarding the 821.5–832 MHz range, which is reserved for use by devices known by the abbreviation PMSE (programme making and special events), in accordance with the terms and conditions set out in Commission Implementing Decision (EU) 2025/105 of 22 January 2025 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices and repealing Implementing Decision 2014/641/EU on harmonised technical conditions of radio spectrum use by wireless audio programme making and special events equipment in the Union. This range is also reflected in UN-153.

- Update to Note UN-159 to add that, just as the 9 300–9 500 MHz band is preferably allocated to State uses for Ministry of Defence systems in the radiolocation service with primary category, the 9.5 to 9.8 GHz frequency band is preferably allocated to Ministry of Defence systems.

- The use of the 862 868 MHz band under the consideration of common use, for low-frequency devices in communication with satellites with the same technical characteristics as other devices, as indicated in Annex 1

to CEPT Recommendation 70-03, as set out in CEPT Decision ECC/DEC(25) 02.

- UN-168 amends the provisions regarding the possibility of applying spectrum-sharing in the 700 MHz band within the broader framework of promoting connectivity, under the umbrella of public funding that is not solely subject to the Recovery, transformation and resilience plan.

- The usage note UN-169 is added to specify the possible uses of the 3 800–4 200 MHz band pursuant to Commission Implementing Decision (EU) 2025/2425 of 2 December 2025 on the harmonisation of the 3 800–4 200 MHz frequency band for shared use by terrestrial broadband wireless systems capable of providing connectivity to the local area network in the Union.

- Note UN-170 is added to include the two uses for which the 1 900–1 920 MHz band is intended, namely: the 1 900–1 910 MHz band is intended, on a non-exclusive basis, for Railway Mobile Radio (RMR), pursuant to 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 1900–1910 MHz for Railway Mobile Radio; while the 1 910–1 920 MHz band is intended for the use and operation of unmanned aircraft systems (UAS), in compliance with the conditions set out in Recommendation ECC (24) 02 on guidance for the use of governmental UAS operating within the frequency bands 1880–1900 MHz and 1910–1920 MHz.

- **Alternatives**

Although the possibility of amending the current CNAF, approved by Order ETD/1449/2021 of 16 December 2021, has been considered, it has been deemed that the significance of the amendments and new developments – in particular those arising from the latest ITU World Radiocommunication Conference (WRC-2023), the implementing decisions adopted by the European Commission and the recent CEPT decisions and recommendations and their updates– makes it advisable to publish a new edition of the CNAF to replace the current one.

- **Public interest issues.**

The public interest stems from the importance of ensuring the effective and efficient use of the radio spectrum, which is a scarce public resource; it is also

necessary to comply with the international obligations undertaken by Spain regarding the international coordination of frequencies.

- **Why this is the appropriate time.**

In view of the changes recently introduced by the aforementioned WRC-2023 conference, as well as new decisions by the EU and the CEPT, together with requirements identified at national level, it is necessary to publish a new CNAF to incorporate all aspects arising from these developments.

2. OBJECTIVES

To establish the allocation of bands, sub-bands, frequencies and channels, as well as the technical specifications for their use, by adopting the requirements arising from changes made to the international provisions of the International Telecommunication Union and the European Union, and by introducing amendments to ensure a more efficient use of the spectrum in line with the specific national context.

B. CONTENT AND LEGAL ANALYSIS

1. CONTENT

The order consists of an introductory section, an operative section consisting of a single article approving its annex, two supplementary provisions, one repealing provision and two final provisions.

These are followed by an annex, which is the actual CNAF technical text.

This annex consists of an introductory section explaining the terms used, such as modes of operation and radio services, among other technical parameters; this section is followed by the notes to Article 5 of the ITU Radio Regulations (RR notes).

Then come the frequency allocation tables for radio services in the three regions into which the world has been divided for this purpose; alongside the global allocations, the national frequency allocations are also indicated.

After the frequency allocation tables, the UN notes for national use are inserted, numbered 0 to 170, plus the CEPT, EU, NATO and radio easement notes.

Finally, the relevant charts and diagrams illustrating the channelling and/or organisation of the various frequency bands are included.

2. LEGAL BASIS

Article 85 Law 11/2022 of 28 June 2022, the General Telecommunications Law, stipulates that the radio spectrum is a public asset, the ownership, management, planning, administration and control of which fall within the remit of the State. This management shall be exercised in accordance with the provisions of this title and the international treaties and agreements to which Spain is a party, taking into account the regulations applicable in the European Union and the resolutions and recommendations of the International Telecommunication Union and other international organisations of which Spain is a member.

For its part, Article 6 of the Regulations implementing Law 11/2022 of 28 June 2022, the General Telecommunications Law, in relation to the use of the public radio spectrum, approved by Royal Decree 123/2017 of 24 February 2017, establishes that, by order of the then Ministry of Energy, Tourism and the Digital Agenda, now the Ministry for Digital Transformation and the Civil Service, the National Frequency Allocation Table for the various types of radiocommunication services, as defined in the International Telecommunication Union Radio Regulations, shall be approved, setting out the allocation of frequency bands to their respective services with such technical characteristics as may be necessary.

3. LEGISLATIVE SCOPE

The legal basis must be a ministerial order issued by the current Minister for Digital Transformation and the Civil Service, as provided for in the aforementioned Article 6 of the Regulation on the use of the public radio spectrum, approved by Royal Decree 123/2017 of 24 February 2017.

4. COMPLIANCE WITH THE PRINCIPLES OF GOOD REGULATION

This regulation has been drafted and processed according to the principles of good regulation set out in Article 129 of Law 39/2015 of 1 October 2015 on the Common Administrative Procedure of Public Administrations.

In particular, as regards the principles of necessity and effectiveness, it is necessary to incorporate the body of decisions, recommendations, technical standards and guidelines issued by international working groups involved in radio spectrum planning into Spanish law.

With regard to the principle of proportionality, the regulation allocates only the radio spectrum necessary to the various services, taking into account the need for effective and efficient use, with specific reference to the setting of limits on the number of operators with the aim of striking a balance between the amount of spectrum an operator may be allocated to deploy its networks and the need to promote competition in the provision of services.

The regulation ensures legal certainty, as it is aligned with European and other international regulations that plan and harmonise uses of the radio spectrum.

As regards the principle of transparency, the reasons justifying this regulation have been explained and the public hearing and information process provided for in Article 26 of Law 50/1997 of 27 November 1997 have been conducted. Finally, the principle of efficiency is respected, since this ministerial order achieves the objective of incorporating the latest international measures on radio spectrum planning that affect our country without establishing administrative burdens.

5. VALIDITY

The regulation is valid indefinitely and takes effect immediately, coming into force on the day following its publication in the Official State Gazette.

This immediate entry into force is justified by the fact that the regulation does not impose new obligations on natural or legal persons engaged in an economic or professional activity; consequently, there is no breach of the provisions of Article 23 of the Government Law and swift adoption of regulations already approved at international level is deemed appropriate.

6. REGULATORY REPEAL

The regulation repeals Order ETD/1449/2021 of 16 December 2021 approving the National Frequency Allocation Table and any provisions of equal or lower rank that are contrary to the provisions of this order.

C) COMPLIANCE OF THE REGULATION WITH THE DISTRIBUTION OF POWERS.

With respect to the distribution of powers, it is issued under the exclusive State competence in telecommunications matters, provided for in Article 149(1.21) of the Spanish Constitution.

D) ECONOMIC AND BUDGETARY IMPACT.

This draft ministerial order has a positive economic impact relevant to stakeholders in the telecommunications sector, as it sets out the regulatory framework for spectrum use and thus provides legal certainty for industry: equipment manufacturers and suppliers, telecommunications network operators, spectrum users, etc.

Furthermore, the draft has a positive impact on competition, as this new edition of the CNAF is eagerly awaited by industry, operators and users, given that it brings spectrum usage into line with changes adopted by international bodies and incorporates changes resulting from technological innovation.
This draft will not have any impact on the expenditure or revenue budget, nor will it entail any costs relating to public sector staff.

E) DETECTION AND MEASUREMENT OF ADMINISTRATIVE BURDENS.

The draft does not entail any other administrative burden.

F) IMPACT BASED ON GENDER, ON CHILDREN AND ADOLESCENTS, AND ON THE FAMILY.

For the purposes of Article 26(3)(f) of Law 50/1997 of 27 November 1997, the Government, it is considered that, as there are no existing inequalities regarding equal conditions and treatment between women and men in this area, the provision does not provide for any change to this situation and therefore has no gender impact.

In accordance with Article 22(d) of Organic Law 1/1996 of 18 November 1996 and the 10th additional provision of Law 40/2003 of 18 November 2003 on the protection of large families, no significant impacts of the draft regulation on children, young people and families are apparent, beyond the general benefits for the population as a whole arising from improved planning and management of the radio spectrum and the consequent provision of multiple services.

G) IMPACT ON OPPORTUNITIES, NON-DISCRIMINATION AND UNIVERSAL ACCESSIBILITY FOR PERSONS WITH DISABILITIES.

The draft regulation has no impact on equal opportunities, non-discrimination or universal accessibility for persons with disabilities.

H) IMPACT ON CLIMATE CHANGE

In accordance with Article 26(3)(h) of Law 50/1997, the Government (as amended by the fifth final provision of Law 7/2021 of 20 May 2021 on climate change and the energy transition), the regulation is considered to have an impact on climate change by facilitating the introduction of new technologies that contribute to decarbonisation of the economy and the fight against depopulation.

I) DESCRIPTION OF THE PROCEDURE.

- Prior to the drafting of this legislative proposal, the public consultation provided for in Article 26(2) of Law 50/1997 of 27 November 1997, the Government, was conducted via the website of the Ministry for Digital Transformation and the Civil Service (between 10 June and 26 June 2025).
- Once this draft legislation had been drawn up, the public consultation process was carried out by publishing it (between 30 September and 30 October 2025) on the website of the Ministry for Digital Transformation and the Civil Service, in accordance with the provisions of Article 26(6) of Law 50/1997 of 27 November 1997, the Government.

Annex 1 to this report provides a summary of the comments received during the public consultation process and the responses to them.

- *[Internal approvals have been obtained within the Department.*
- *Likewise, on xx xxx 202x, the State Legal Service of the Secretary of State for Telecommunications and Digital Infrastructure issued a report containing no comments.*
- The National Commission for Markets and Competition issued a report on 2 December 2025.

Annex 1 to this Report also includes the observations of the National Commission for Markets and Competition (CNMC) and the responses thereto.

- *Likewise, on x November 202x, in accordance with the provisions of the first paragraph of Article 26(5) of Law 50/1997 of 27 November 1997, the Government, a report was requested from the Technical General Secretariat of the Ministry of the Interior, the Ministry of Defence and the Ministry of Transport, Mobility and Urban Agenda. On x xxx 202x, the Ministry of Defence submitted a number of comments, which are set out in Annex 1 to this Report.*
- *On xx November 202x, in accordance with the provisions of the sixth paragraph of Article 26(5) of Law 50/1997 of 27 November, the Government, the General Directorate for Regional and Local Legal Systems of the Ministry of Territorial Policy issued a report; the sole formal comment made has been incorporated into the final text.*
- *On xx xxx, in accordance with the provisions of Article 26(5), fourth paragraph, of Law 50/1997 of 27 November 1997, the Government, the Technical General Secretariat of the Ministry of Economic Affairs and Digital Transformation issued a report, the comments from which have been incorporated into the final version of the regulation.*
- *On xx xxx, in accordance with the Article 26(5), fourth paragraph, of Law 50/1997 of 27 November 1997, the Government, the Technical General Secretariat of the Ministry of Transport, Mobility and Urban Agenda issued a report, the comments of which were included in the final version of the legislation.]*

ANNEX 1

REPORT ON THE SUBMISSIONS RECEIVED DURING THE PUBLIC HEARING PHASE AND ON THE COMMENTS SUBMITTED BY THE CNMC.

PUBLIC HEARING (held between 30 September and 30 October 2025)

As a mandatory part of the regulatory process, and with the aim of giving a hearing to those potentially affected and gathering any contributions that might be made by individuals and organisations, the public consultation period for the draft order approving the National Frequency Allocation Table was opened on 25 September 2025, pursuant to the provisions of Article 133(2) of Law 39/2015 of 1 October 2015 on the Common Administrative Procedure of Public Administrations and Article 26(6) of Law 50/1997 of 27 November 1997, the Government.

As part of this public consultation process, which concluded on 31 October 2025, eight submissions were received from the following organisations in October 2025:

- ACUTELAN (NATIONAL ASSOCIATION OF LOCAL TELECOMMUNICATIONS AND TELEVISION INFRASTRUCTURE OPERATORS)
- COIT (OFFICIAL COLLEGE OF TELECOMMUNICATIONS ENGINEERS)
- ENAIRE
- HISPASAT
- ITIS (UNIVERSITY OF MALAGA INSTITUTE FOR SOFTWARE ENGINEERING AND SOFTWARE TECHNOLOGY)
- KUIPER SYSTEMS LLC (AMAZON)
- RADIOTRANS
- TELEFÓNICA ESPAÑA

TELEFÓNICA ESPAÑA has classified its contributions as **CONFIDENTIAL**.

The most relevant aspects of the comments received and the responses to them are set out below.

1- ACUTELAN (national association of local telecommunications and television infrastructure operators): representing local and regional operators. Their proposals focus on improving spectrum availability and allocations for these operators, with a particular emphasis on the following bands:

- UHF band (470–694 MHz) – it is requested that protections be strengthened for television broadcasting and that a national note be included advocating preferential use for local and community television.

  Response: it is not considered appropriate to grant such preferential use; as the band is reserved for digital terrestrial television services, doing so would mean prioritising local services over regional and national ones.

- Frequency bands for mobile services and private 5G/6G networks: it proposes introducing temporary licensing schemes to enable local operators to deploy private networks in these bands and reserving low-power or local-use blocks in the mid-band spectrum (3.4–3.8 GHz and 26 GHz), as is the case in other European countries.

  Response: it is not considered necessary to reserve blocks in those bands. The 3.4–3.8 GHz band is not available as the entire band is allocated to public electronic communications operators. As regards the 26 GHz band, applications for local use in that band are not significant enough to warrant setting that band aside, and can therefore be processed in the normal way. In addition, a new UN note has been added to the CNAF assigning a frequency band to private networks in the band 3.8–4.2 GHz.

- It proposes strengthening the coordination mechanisms between broadcasting and telecommunications, incorporating a complementary technical note that ensures compatibility on the margins of the adjacent bands.

  Response: it is not necessary to add this new note, since UN-153, '694–790 MHz (700 MHz) and 790–862 MHz (800 MHz) bands', already states that 'The use of these frequency blocks for the provision of these services must not cause interference to the digital terrestrial television service provided in the adjacent frequency band below (470–694 MHz). To this end, the transmitting stations of these networks must bring their

technical characteristics into line with the technical conditions harmonised by Implementing Decision (EU) 2016/687. Table 8 of Section B of the Annex to that Decision sets out the reference power limits for base stations operating in the spectrum below 694 MHz.

Furthermore, it offers to collaborate with the Secretary of State in outreach and collaboration with local and regional operators.

2- COIT (Official College of Telecommunications Engineers) simply proposes the following amendment to Note UN-50, in order to clarify the text:

(…) The 2 352.5–2 392.5 MHz frequency range is allocated on a non-exclusive basis to networks of the terrestrial mobile broadband service under self-provision, with local coverage within the scope of activity of its owner, whether a public or private entity. In the 2 382.5–2 392.5 MHz frequency range, priority is given to networks used for the management of public utilities providing electricity, gas or water; this range is also allocated to terrestrial fixed point-to-multipoint networks for the management of the aforementioned public utilities.

Response: the proposed text is not included. It does not contribute anything in particular and may pose a limitation for users in the future.

3- ENAIRE: calls for the inclusion in CNAF Note UN-102 of a series of channels of common use for general aviation, which are as follows:

- frequency 123.45 MHz, with a 25 kHz channel spacing;
- frequency 123.375 MHz, with a 25 kHz channel spacing;
- Channel 123.065 (corresponding to the frequency 123.06667 MHz) with an 8.33 kHz channel spacing.
- Channel 123.135 (corresponding to the frequency 123.13333 MHz) with an 8.33 kHz channel spacing.

response: the proposal from ENAIRE is accepted, given that they are the body with the necessary expertise regarding channel requirements in the aviation sector and the requested channels are available. The corresponding references are included in Note UN-102.

4- HISPASAT: proposes the following suggestions in relation to the National Frequency Allocation Table:

- Include Note 5.554A in the frequency range 48.2–48.54 GHz in the national table. That note is found in the ITU Radio Regulations for that

frequency band, but has not yet been incorporated into the national regulations.

Response: it makes sense to include that note; in fact, it was a mistake that it wasn't there before. Added to the latest version.

- In Note UN-64, it is proposed that the reference to the 11.2–11.45 GHz sub-band be deleted, as this is part of the downlink in Appendix 30B, and is already referred to in Note UN-62.

  Response: the comment is correct and the reference to that sub-band in Note UN-64 has been removed.

- In Note UN-79, it is proposed that the following sentence be included: 'However, coordinated earth stations in the fixed-satellite service (FSS) can use the full 27.5–29.5 GHz band'. The aim of the proposal is to make it clear that the fixed-satellite service (FSS) is permitted to use the full range of the band for coordinated stations, which in their view is not sufficiently clear in the current wording.

  Response: the space service area had already discussed the inclusion of a similar sentence, and proposes the following wording, which is added to Note UN-79: 'Coordinated earth stations of the fixed-satellite service may use the entire 27.5–29.5 GHz range.'

- In Note UN-92, it is proposed that the phrase 'In addition, the 24.65–25.25 GHz frequency band is allocated to the fixed-satellite service' be included, to mimic what is already done in other national notes where such allocation to the fixed-satellite service exists.

  Response: given that it is true that similar observations appear in other UN notes and that it is correct that that band is attributed to the fixed-satellite service, the proposed sentence is added to Note UN-92.

- In addition to the update already made to the CEPT decisions and recommendations included in the CNAF, a number of them have been identified, relating to small-scale and/or mobile antennas associated with the fixed-satellite service, which have not yet been adopted by Spain and which it is proposed to adopt, include in the list of CEPT decisions and

recommendations and, if necessary, include in a UN note. They are as follows:

- ECC DEC(15)04: on the harmonised use, free circulation and exemption from individual licensing of land, maritime and aeronautical earth stations on mobile platforms (ESOMPs) operating with non-geostationary satellite orbit (NGSO) FSS satellite systems in the frequency ranges 17.3–20.2 GHz, 27.5–29.1 GHz and 29.5–30.0 GHz.
- ECC/DEC/(19)04: on the harmonised use of spectrum, free circulation and use of earth stations on board aircraft operating with geostationary satellite orbit (GSO) FSS networks and NGSO FSS systems in the 12.75–13.25 GHz (Earth-to-space) and 10.7–12.75 GHz (space-to-Earth) frequency bands.
- ECC DEC(21)01: on the use of the bands 47.2–50.2 GHz and 50.4–52.4 GHz by the fixed satellite service (Earth-to-space).
- ECC DEC(23)01: on the use of the band 40.5–42.5 GHz by earth stations in the fixed-satellite service (space-to-Earth) and broadcasting-satellite service and on the use of the band 42.5–43.5 GHz by earth stations in the fixed-satellite service (Earth-to-space).

Response: These Decisions are not included for the following reasons: some of them relate to new bands for the fixed-satellite service and the intention is to proceed with caution, specifying the specific characteristics in each individual application that may be received, without committing to including them in the CNAF in all cases. Furthermore, some of them are currently under review and there is no consensus among the major European countries regarding their adoption and implementation.

5- ITIS, the University of Malaga Institute for Software Engineering and Software Technology: has submitted comments regarding the **Draft order on the National Frequency Allocation Table** due to the **limited availability of spectrum for self-provision in private 5G networks**, beyond the n40 (2.3 GHz) and 26 GHz bands already included in the draft.

ITIS is currently implementing **national and European projects** funded to the tune of several million euros (PRTR and SNS JU) which require the use of private 5G networks with a commitment to five years of use. They currently hold licences for various frequency bands, including 2.3 GHz, 26 GHz and 77 GHz, and have recently applied for spectrum in the 3.8–3.9 GHz band; of these, only

one has been granted for a period of five years, while the others are pending the outcome of the application.

They therefore argue as follows:

- The current 2.3 GHz and 26 GHz bands are not sufficient to support all use-cases and demonstrations with large numbers of users; the 26 GHz band has good coverage at short-range but not for wider areas.
- The extension of Band 40 is a positive development, but the priority given to specific sectors (energy, water) limits its availability for other research projects.
- The 5G infrastructure initially available only covers the lower part of Band 77, limiting the implementation of publicly funded projects.

For all these reasons, they are requesting that **consideration be given to explicitly including in the order a 100 MHz allocation in the lower part of the 3 800–3 980 MHz range for self-provision** in mobile networks, thereby ensuring the viability of research projects and the expansion of 5G in private networks.

Response: the proposal is accepted, subject to the inclusion in the CNAF of a new UN note concerning the 3.8–4.2 GHz band, in which the 3 800–4 100 MHz band is reserved for local private 5G networks.

6- Kuiper Systems LLC (AMAZON): welcomes the opportunity to comment on the **draft order of the CNAF** and supports updating the frequencies according to the results of **WRC-23** and decisions of the **CEPT**. Amazon supports the inclusion of **ITU footnote 5.517B** for the 17.3–20.2 GHz, 27.5–29.1 GHz and 29.5-30 GHz bands, which regulates **Earth Stations in Motion (ESIM)** for NGSO satellite systems.

Furthermore, it requests that explicit reference be made to **ECC Decision (15)04**, which sets out the technical and operational requirements for ESIMs and permits operations without individual licences. This would clarify application in Spain and facilitate the deployment of ESIM technology.

Response: this Decision is not included for the reasons already stated in relation to the HISPASAT proposal.

In this context, Amazon highlights that its **Kuiper Project** aims to provide **affordable broadband** to underserved communities and is currently rolling out satellites and customer terminals, with an investment of over USD 10 billion.

7- RADIOTRANS: has submitted comments on the draft **CNAF** order, supporting the update incorporating the provisions of WRC-23, CEPT/EU

decisions and national standards, and proposes clarifications and operational measures to optimise spectrum usage by critical and local sectors:

- **PPDR 700 MHz (UN-153)**: calls for the publication of a timetable and milestones for the deployment and testing of DTT interference, and for clarification that local councils, municipal consortia and public companies may access the regional/local frequency band.

  Response: the proposals are not considered necessary or relevant. The deployment and interference testing schedule does not comply with the CNAF standard, while the public bodies mentioned already have access to the regional/local frequency band. The approach will not be based on a specific plan, but will involve assessing each application on a case-by-case basis.

- **PPDR 450 MHz (UN-31)**: proposes technical guidelines on spectrum-sharing to facilitate municipal and hospital deployments while the 700 MHz band is not operational.

  Response: no changes have been made to the CNAF Order in this regard. Such spectrum-sharing guidelines are not considered necessary; instead, requests received will be assessed on a case-by-case basis.

- **2.4 GHz local self-provision networks (UN-50)**: Clarify that these are local networks operated by public or private entities (local councils, utility companies, smart city initiatives), with a technical guide covering channel spacing, power requirements and coexistence.

  Response: as stated in relation to the COIT proposal, this clarification is not considered necessary, as it adds nothing of substance and could, in future, place restrictions on users.

- **Future Railway Mobile Communication System (FRMCS) (UN-40)**: Coordinate with urban logistics operators, ports and underground networks regarding pilot schemes and the transition to GSM-R/FRMCS.
  Response: the proposed forms of coordination do not relate to matters that need to be specified in the CNAF Order, which does not address the issue of potential coordination committees.

- **3.8–4.2 GHz (UN-55)**: Not immediately authorise mobile/fixed communication networks (MFCN), but propose **sandbox/experimental regulation** for local industrial use, ports, logistics, mining and utilities.

Response: as indicated in the new UN note added to the CNAF, the 3.8–4.2 GHz band is allocated to local 5G private networks for electronic communications operators or for self-provision, as well as to electronic news gathering services and tactical cells of the Ministry of Defence.

- **Impact by sectors**:
    - Municipal services, hospitals: PPDR 700 MHz, self-provision 2.4 GHz, indoor 26 GHz, temporary 3.5 GHz.
    - Ports, logistics, industry, utilities: UN-50 local, UN-92 capacity peaks, 3.8–4.2 GHz study.
    - Shopping centres, stadiums, university campuses: UN-92 high density hotspots.
- **Specific formulation**: suggests notes and provisions clarifying self-provision, deployment plans, temporary protocols and spectrum-sharing guidelines to ensure legal certainty and efficiency.

Finally, Radiotrans points out that the proposals **do not alter the balance** of the draft, but rather clarify, operationalise and accelerate the socioeconomic return of local and hybrid networks. It therefore aims to provide use cases and technical parameters to serve as additional guidelines.

8- TELEFÓNICA:

Telefónica would like to thank the Ministry for Digital Transformation and the Civil Service for the opportunity to participate in the public consultation on the draft order amending the National Frequency Allocation Table (CNAF), which addresses the changes resulting from the 2023 World Radiocommunication Conference, as well as relevant European and national decisions regarding the harmonised use of frequency bands.

In this context, Telefónica stresses that any amendment to the CNAF must ensure a framework of legal certainty to protect the investments made in the deployment of 4G, 5G and 6G networks, as well as avoid competitive distortion.

In the context of this consultation and/or in the future, Telefónica would like to highlight the following points for consideration:

6 GHz band:

The **6 425–7 125 MHz band** is critical to the development of **6G**, providing sufficient bandwidth and adequate coverage for urban and semi-urban environments.

In this regard, Telefónica **advocates the need to harmonise this band for international mobile telecommunications (IMT)**, instead of partially targeting non-licensed uses such as Wi-Fi, as this decision will have a direct impact on Europe's technological competitiveness and the ability of operators to offer advanced services in addition to ensuring the digital sovereignty of the region.

As a convergent operator, Telefónica understands its customers' needs and can therefore state that **the 6 GHz high-frequency band should be reserved exclusively for IMT**, as it offers significant bandwidth and is ideal for high-demand applications and for supporting the anticipated increases in mobile traffic.

Response: given the current stage of the decision-making process at European level regarding the use of this band, it makes no sense to include any statement on this point in the CNAF, as there is as yet no definitive European legislation.

Bands 3 800–4 200 MHz and 2 400 MHz:

Telefónica maintains that this band could be strategic for **macro networks** and local 5G networks.

Their current use in Spain is limited (compared with other countries). Premature allocation to local low-/medium-power networks may:

- reduce future capacity for macro networks;
- fragment the spectrum and affect the profitability of operators.

Telefónica therefore proposes the following:

- Initially allocate **100 MHz in the high part (4 100–4 200 MHz)** to assess demand.
- Maintain the remaining 300 MHz for future high-capacity deployments.

Regarding the unallocated spectrum in the 3.5 GHz and 26 GHz bands:

Telefónica emphasises the need to manage the unallocated spectrum prudently in order to:

- avoid precipitous decisions that compromise strategic value;
- allow the market to determine the optimal allocation.

Telefónica wishes to emphasise the importance of this spectrum remaining available without any changes to permit its future use, leaving it to the market to determine its optimal configuration. Furthermore, the technological ecosystem is not yet sufficiently mature to justify intensive use of the 26 GHz band.

Response: regarding the first part, concerning the 3.8–4.2 GHz band, the upper portion (4 100–4 200 MHz) remains reserved to ensure the protection of altimeters operating in the adjacent band. As for the remaining 300 MHz, these will be made available for use by electronic communications operators in local private 5G networks. As regards the second part, there are no significant amendments in the order that would conflict with prudent management of these bands; consequently, this proposal is already in place.

Migration of the GSM-R railway system to FRMCS:

The coexistence of the GSM-R railway system with mobile networks has historically generated problems for operators in areas close to railway infrastructure, limiting the use of the spectrum and affecting the quality of service.

With the migration to the FRMCS system, there is an opportunity to address this issue. It is therefore essential that the authorities establish clear technical requirements to ensure compatibility between the new railway system and mobile networks, including the installation of filters, guardbands and frequency coordination. A technical dialogue between mobile and railway operators should be promoted to ensure joint planning that maximises efficient use of the spectrum and does not continue, after many years, to damage the value and use of operators' licences.

In short, Telefónica is requesting that the amendment to the CNAF include provisions requiring railway operators to implement effective management measures for the new system; and ensuring the full and effective availability of mobile operators' licences throughout the country.

Response: the order already refers to the decisions – of both the Commission and the ECC – that are relevant to the operation of the new

FRMCS system in those bands, setting out the conditions to be met by railway operators.

Modification of spectrum caps:

The future of connectivity and digitalisation in Europe, driven by the potential early introduction of 6G, requires the upper part of the 6 GHz band to be allocated to international mobile telecommunications (IMT) and the 3 800–4 200 MHz spectrum to be managed appropriately.

However, operators face a more immediate challenge: the rise in data traffic on 4G and 5G networks, which is putting pressure on capacity, including in mid- and low-band frequencies such as the 800 MHz band.

These increases make it necessary to ensure sufficient capacity in the spectrum already deployed, with widespread coverage, in order to cope with the rise in traffic and accelerate the transition to 5G and 6G.

Furthermore, market developments and new network deployment models – such as radio access network (RAN) sharing, pooling and wholesale businesses – require greater flexibility in spectrum caps, allowing operators to define their future needs in order to maximise efficiency, investment and business models.

In conclusion, Telefónica is calling for a review of the current spectrum caps in light of the increase in traffic, the introduction of new technologies and market conditions.

Response: this does not appear to be a proposal that affects the CNAF Order, so it does not entail any changes.

Mobile satellite service (MSS) and D2D:

Telefónica emphasises that D2D (direct-to-device) services could be key to bridging the gap in coverage and usage, particularly in rural, remote or crisis-affected areas, to which resilience and backup solutions should be added.

In this sense, it would appear that the most coherent band for the use of this type of services was the 2 100 MHz MSS band identified by the ITU for that purpose, allowing use of the D2D service in this spectrum. The European Commission is analysing the introduction of D2D services into the European market and has already launched a public consultation on the matter.

However, an alternative that is becoming increasingly important involves using the spectrum allocated to IMT (terrestrial mobile service), through

commercial agreements with electronic communications operators to facilitate compatibility and integration with existing terrestrial mobile networks.

Response: the introduction of D2D (direct-to-device) services as a supplementary service in IMT bands is currently being considered by the CEPT, but it is certainly not at a stage that would justify its inclusion in the CNAF Order.

Finally, as a **general conclusion**, Telefónica responds as follows:

- Spain and Europe are at a critical juncture in the deployment of **advanced 5G and 6G**.
- Telefónica calls for prudent decisions on:
  - 6 GHz band → exclusively IMT;
  - 3 800–4 200 MHz band → initial partial allocation;
  - vacant spectrum and caps → greater flexibility.
- The objective is to maximise efficiency, protect investments, ensure service quality and maintain European technological leadership.

REPORT (CNMC) Report IPN/CNMC/036/25 of 2 December 2025.

On 4 December 2025, the Subdirectorate General for Spectrum Planning and Management received the relevant report from the National Commission for Markets and Competition (CNMC), which gave a positive overall assessment of the draft order approving the 2025 CNAF and made the following observations:

1- The extensions to the deadline for the release of governmental uses set out in the new draft order are not considered sufficiently justified. Notes UN-45, UN-46 and UN-48 move the release date for these uses to 1 January 2030, while Note UN-107, which is considered particularly relevant, sets the deadline for this migration to 1 July 2026 due to the interest of mobile operators in using the 3.4–3.8 GHz band to which it refers.

Response: with regard to the extension of the deadlines to 1 January 2030 established in notes UN-45, UN-46 and UN-48, it is important to note that the State's priority uses identified in those bands fall within the remit of the Ministry of Defence. Although the need to release these assets has been highlighted, the Ministry of Defence has not yet done so, meaning that it is necessary to maintain this reservation within the CNAF Order. As the Ministry of Defence has not set a clear deadline in such cases, the established deadline has been deemed sufficient, given the length of the process to date and the stages that remain to be completed. With regard to Note UN-107, the date of 1 July 2026 has indeed been clearly stated by the Ministry of Defence, and it is understood that this does not constitute an excessive extension of the previously defined deadline, bearing in mind, furthermore, that this is a situation already known and accepted by mobile operators, which is understood not to restrict full use of the spectrum by mobile operators in the 3.4–3.8 GHz band.

2- It is proposed that a proposal be reinstated that was put forward by SETID during the processing of a draft order notified on 30 March 2023, which involved allocating the first 20 MHz of the 3.4–3.8 GHz band (3 400–3 420 MHz) for use under self-provision, thereby increasing the amount of spectrum available for this purpose, in addition to the 40 MHz already allocated in the 2.4 GHz band and extended in this new version of the CNAF Order, in Note UN-50.

Response: the proposal is not accepted, as the 3.4–3.8 GHz band is one of the bands earmarked for the deployment of 5G technology by electronic communications operators. Since in the new CNAF Order it is planned to allocate 100 MHz of the 3.8–4.2 GHz band (from 4 000 to 4 100 MHz) to uses under self-provision, it is not considered necessary to make the proposed allocation, which would limit the spectrum available to electronic communications operators in the 3.4–3.8 GHz band, which they need for 5G deployment.

3- It is indicated that there is a need, once the public consultation on the 3.8 – 4.2 Ghz band is completed, for further amendment of the CNAF in order to enable its use in the deployment of local networks, in accordance with the harmonised conditions established by the CEPT and the ECC.

Response: the allocation of the 3.8–4.2 GHz band for the deployment of local networks is set out in the new version of the CNAF, including a UN note on the matter.

Between 25 October and 25 November 2025, a public consultation was held to invite comments from interested parties on certain aspects of the use of the 3 800–4 200 MHz and 1 900–1 920 MHz bands.

These contributions and their main observations are listed below.

3 800–4 200 MHz BAND

1. NEW USES TO BE INTRODUCED IN THE BAND.

Please indicate the type(s) of use that you consider appropriate for the band, in accordance with the harmonised technical conditions for the provision of local connectivity via low- and medium-power (LMP) wireless systems.

a) ACUTELAN

They propose drawing up an open list including services that are already standardised or in the process of being standardised and limiting the restrictions solely to authorised power levels. They consider private 5G networks and mobile cells to be essential for electronic news gathering.

b) AMETIC (Spanish Association of Electronics, IT, Telecom and Digital Content Services Companies)

Private 5G networks serving various vertical sectors: industry, energy and agri-food, as well as defence.

c) AOTEC (National Association of Telecommunications Operators)

It proposes that part of the spectrum be reserved for providing mobile services to third parties in municipalities with fewer than 20 000 inhabitants, through the establishment of a public network.

d) Axión (wholesale operator of national telecommunication infrastructures and services)

The sectors in which the greatest demand for 5G systems has been identified are industry, local government and emergency and civil protection services, which require spectrum for new capabilities such as the real-time transmission of images and video.

e) Cellnex (wireless telecommunications infrastructure and services company)

Cellnex Telecom does not anticipate a need for further deployments of the fixed service in this band; however, it does have two critical radio links in that band used for emergencies, the Merchant Navy, etc., which it needs to

continue maintaining and cannot migrate to other bands. They consider that their coexistence with the new uses is viable.

f) Diggia-Gamma (technology and telecommunications solutions)

They propose that the band be allocated for use in local private 5G networks for industrial and logistics environments, public services and mission-critical communications, as well as for experimental deployments, pilot schemes and innovation environments.

g) DigitalES (Spanish association of telecommunications, technology and digital innovation companies)

They believe there may be additional uses for low- and medium-power local networks, but do not specify what these might be.

h) GSA (Global mobile Suppliers Association)

They consider harmonisation of the frequency band allocated to low- and medium-power networks to be a sound approach.

i) Huawei

They support the idea that users of private networks should benefit from this band. However, they do not believe that there is currently enough demand for LMP use to cover the entire spectrum. It is recommended that local area allocations be concentrated within a specific part of the band and not occupy the entire 400 MHz range (from 4 000 to 4 200 MHz).

j) MasOrange (Spanish telecommunications operator)

This band should be considered a natural extension of the 3 400–3 800 MHz band. However, new uses could include the deployment of local or industrial 5G networks, assuming common technical conditions. Others do not support its use for non-IMT services or those not subject to coordination.

k) Nokia

It makes it possible to draw maximum benefit from local 5G networks across a range of applications: machine vision for quality control, augmented and virtual reality, remote control of production lines, robotisation, integrated communications, and multi-sensor process monitoring.

l) Radiotrans (telecommunications engineering and solutions)

They support the introduction of local licences on an area-by-area basis (site/campus), on an exclusive basis, for local authorities, ports, airports, hospitals, stadiums, industry and so on, for critical voice over broadband services, real-time video, industrial Internet of Things (IoT) and automation.

m) RTVE (Spanish public radio and television broadcasting corporation)

Uses involving 5G for audiovisual production and broadcasting by broadcasters on an occasional basis and within specific geographical and

temporal limits (coverage of sporting events, news broadcasts, events held indoors, etc.)

n) Telefónica

It does not want to rush. Recommends allocating 100 MHz in the upper part (4 100–4 200 MHz) for self-provision networks, to analyse actual demand.

ñ) UHD Spain

Introduce professional broadcasting and audiovisual production services using LMP. In particular, intended for covering large-scale events, remote locations, fixed TV studios, etc.

o) Vodafone

It suggests not rushing the process, as happened with the 26 GHz band. It recommends initially allocating only 100 MHz in the upper part of the band for the development of possible concrete business projects that may demand its use for the deployment of local networks.

2. SPECTRUM NEEDS FOR EACH TYPE OF NEW USE.

Please specify and justify the bandwidth needs for these uses.

a) ACUTELAN

They recognise that the use of private 5G networks is set to grow across a wide range of sectors, and that this should be the priority when it comes to spectrum allocation. They also attach importance to their use for electronic news gathering.

b) AMETIC

They do not believe that there is significant spectrum demand for local low- or medium-power use, nor do they know whether such demand will materialise in the future; they therefore propose that these frequency allocations be made in only part of the band, leaving the door open for different uses.

c) AOTEC

In order to achieve what is described in the previous section, they consider it necessary to have at least 100 MHz available.

d) Axión

They propose reserving at least 300 MHz for private 5G networks under self-provision.

e) Diggia-Gamma

Proposes dividing different sectors into dedicated segments within the band: local private networks, public or mission-critical services, R&D initiatives.

f) DigitalES

They consider that there is currently no excessively large spectrum demand for local low- or medium-power local networks; consequently, they believe it is appropriate to allocate only the top 100 MHz for this purpose, so as to allow industrial needs to flourish while leaving the door open for new uses within the band.

g) GSA

Spectrum needs must accommodate a wide range of scenarios, such as cases in which there is no link between the licensee and the licensed area, and others in which there is. They consider that the spectrum demand for this type of network is unclear in Spain, so they propose starting by allocating the upper part of the band, thereby making alternative uses possible.

h) MasOrange

They consider it essential to ensure at least 300 MHz for public IMT networks in the 3 800–4100 MHz band. It is desirable to maintain contiguous blocks for IMT and avoid fragmenting the band.

i) Nokia

The different use cases could be satisfied with no more than 100 MHz. It is suggested that special care should be taken in distributing the spectrum among users.

j) Radiotrans

Flexible channels of 10/20/40/80/100 MHz per project, with the possibility of aggregating carriers within the block allocated to the licence holder.

k) RTVE

Use of private networks within the scope of television production, both at external events and in studios.

l) UHD Spain (non-profit association of companies in the 4K HDR audiovisual industry working to establish Ultra High Definition in Spain)

As UHD requires high bandwidth, consecutive blocks of 10 or 20 MHz are proposed, which can be aggregated to achieve bandwidths of up to 100 MHz, as appropriate.

3. OPERATIONAL MODEL FOR THE BAND.

Given the need to share the 400 MHz band among various services, such as mobile cells for electronic news gathering, defence services, and local (vertical) private 5G networks, among others, how do you think the 400 MHz band should best be utilised and planned? Please also take into account the services to be protected in the adjacent band.

a) ACUTELAN

They propose drawing up an initial proposal through a new consultation. A system of local licences could be established for private 5G networks in particular (there is experience with this in the UK).

b) AMETIC

As regards private 5G networks, they propose using a direct allocation scheme for end users, establishing spectrum-sharing arrangements to prevent interference; however, the absence of this specific licensing scheme for vertical industries could hinder the development of business use cases.

c) AOTEC

As the reservation is only available in municipalities of 20 000 inhabitants, any potential interference or adaptation needs would be reduced to the adjacent bands and uses.

d) Axión

It proposes a self-provision model whereby each public agency or sectoral body applies for authorisation by demonstrating technical requirements, geographical scope, capacity and duration of use.

e) MasOrange

Hierarchical coordinated model, with priority to IMT. Local 5G networks should operate under regulated spectrum-sharing schemes using time division duplex (TDD) synchronisation. As regards the operating model for medium- and low-power applications, this should be geared towards self-provision, with licences limited in terms of time and geographical scope.

f) Nokia

A gradual and concentrated spectrum allocation is recommended for private companies and vertical networks.

g) Radiotrans

National pool with area-based allocations (non-exclusive) ensuring the protection of incumbents. Publication of licences on a map for better transparency and coordination.

h) RTVE

Fixed concession, provided that operation is within studios or enclosed premises and the use is limited in time and geographical scope according to the duration of the event. Use of LMP (20-24 dBm) generic power.

i) Telefónica

Recommends allocating 100 MHz in the upper part (4 100–4 200 MHz) for self-provision networks, to analyse actual demand.

j) UHD Spain

A local operation model, limited in geographical scope and in time, is needed for the specific event.

k) Vodafone

It recommends initially allocating only 100 MHz in the upper part of the band for the development of possible concrete business projects that may demand its use for the deployment of local networks.

4. MANAGEMENT MODEL FOR THE BAND.

With regard to the management model ('first come, first served', block allocation, pool, others) and the authorisation model (type of licence, authorisation, concession), which do you consider to be the most appropriate, taking into account the level of spectrum-sharing envisaged for the band, as well as the fact that this concerns the provision of local connectivity?

a) ACUTELAN

They are considering the possibility of establishing a competitive system for the award of usage rights. Consideration could be given to reserving blocks for specific types of use, as well as to allocating concessionary licences through competitive tender procedures. As regards mobile stations for journalistic use, they consider that an authorisation certificate limiting their power would be sufficient, as this would enable them to use all of the band, except where they are envisaged to be used for emergency services, safety, etc.

b) AMETIC

There should be no restrictions on who can access the band, provided that the technical requirements are met.

c) AOTEC

They propose awarding them through a concession following a competitive procedure in which the degree of coverage offered by the tenderer and the deadline for carrying out the deployment would be evaluated. This tender process would take place annually and operators who already hold frequencies to provide such services within the coverage area would not be eligible to apply.

d) Axión

It proposes that the emergency services should be given priority within their operational remit.

e) College of Telecommunications Engineers

It proposes establishing a system of local licences based on 5 MHz blocks up to a maximum of 80 MHz; protection for various existing services must be ensured, and this must be taken into account in the technical conditions of the licences. The duration of the concession shall be a minimum of 5 years and a maximum of 20 years.

f) Diggia-Gamma

They consider it necessary to have a model that combines:
- flexible access through local authorisations;
- controlled spectrum-sharing mechanisms;
- dynamic reservation management (pool).

g) DigitalES

Through self-provision, such that it is the various sectors and operators who obtain the necessary authorisation from the regulator by demonstrating technical specifications regarding bandwidth, capacity and coverage.

h) GSA

It argues that no restrictions should be imposed on the entities that can access the band, provided that the stipulated technical conditions are met.

i) Huawei

There should be no restrictions on who can access the band, provided that the technical conditions are met. In particular, mobile operators should not be excluded.

j) MasOrange

An open and unlicensed model is not recommended. Reserve at least 300 MHz for IMT as an extension of the 3 400–3 800 MHz band, implementing coordination mechanisms, annual reviews and protection of adjacent bands.

k) Nokia

It is suggested that a 'first come, first served' approach be adopted, accompanied by temporary authorisations.

l) Radiotrans

Individual authorisation by area on a 'first come, first served' basis, with licences renewable every five years.

m) RTVE

Deployment under an occasional use licence is proposed. In the event of conflicting requests, prioritise the institutional and/or public signal.

n) Vodafone

Access to these 100 MHz should be open to all market participants (including operators). The granting of concessions must be justified in order to prevent spectrum hoarding; they must have a duration of no more than one year and cover a limited geographical area.

ñ) UHD Spain

A management model based on dynamic allocation is proposed, with rapid, automated processes, featuring scenario-specific authorisation types (outdoor, indoor, time-based) and the capacity to respond to emergencies.

o) Telefónica

Allocate gradually and prudently with limited bandwidths, preferably not exceeding 40–60 MHz initially. A self-provision model should be adopted, with authorisations that are temporary in nature and of limited geographical scope and bandwidth, duly justified to ensure efficient use of the spectrum.

5. AVAILABILITY OF EQUIPMENT.

Please indicate whether you consider the equipment available on the market to be sufficient to provide the service.

a) Axión

There is a growing supply of equipment compatible with this band, especially for data-intensive services.

b) Diggia-Gamma

They consider that there is currently a sufficient degree of maturity in the market to permit the deployment of 5G private networks.

c) MasOrange

Equipment availability is not yet complete, so it recommends maintaining initial flexibility in the technical specifications.

d) Nokia

Nokia already has equipment operating in that band in other countries, although it is necessary to develop ETSI specifications reflecting the conclusions of ECC Decision (24)01.

e) Radiotrans

Equipment for NR-TDD 3.8–4.2 GHz is already available. They propose approval by declaration (technical profiles) so as not to hinder deployments.

f) RTVE

There are already devices that support bands n77 and n78, with which successful tests have already been conducted.

g) Telefónica

The band has already been allocated to IMT in certain regions, which means that compatible devices are available on the market.

h) UHD Spain

5G equipment is widely available. The technology is sufficiently available and mature.

6. HIGH POWER.

The Annex of harmonised technical conditions has a Note number 2 in the table corresponding to the section on technical conditions applicable to base stations, which reads verbatim as follows:
'Note 2: Higher EIRP [equivalent isotropically radiated power] levels may be authorised by national administrations in exceptional and duly justified cases, provided that protection of FSS receiving Earth stations and FS links (where appropriate at national level) in the band as well as terrestrial systems providing WBB ECS [wireless broadband electronic communication services] below 3 800 MHz and radio altimeters operating in the 4 200–4 400 MHz frequency band is ensured, taking into account their future development, including in the neighbouring EU Member States. The network coverage shall remain local (i.e. no nationwide networks).'
Please indicate under which exceptional and duly justified cases you consider that this note would apply.

a) ACUTELAN

They consider that providing coverage inside buildings or in rural areas should count among the exceptions. They propose leaving the issue open for the time being.

b) AMETIC

They believe that the provision allowing a high EIRP in specific cases should be retained in the national regulation, evaluating where it is most efficient to deploy a macrocell.

c) Diggia-Gamma

Only for exceptional and duly justified scenarios: emergencies, defence and national security, major public events.

d) DigitalES

Decision ECC(24)01 permits a high EIRP in specific cases; they consider that this option should be retained in the national legislation. It should be possible to envisage cases in which it is more appropriate to deploy a macro-cell.

e) GSA

Decision ECC(24)01 permits a high EIRP in specific cases; they consider that this option should be retained in the national legislation. It should be possible to envisage cases in which it is more appropriate to deploy a macro-cell.

f) Huawei

Decision ECC(24)01 permits a high EIRP for base stations in specific cases. This option should be retained in the national regulation.

g) MasOrange

It should only be authorised in exceptional circumstances, such as rural areas or isolated areas with a low density of stations. Strict mitigation measures should be applied in these scenarios. It is not recommended for use in urban areas.

h) Nokia

Licences for higher power levels are exceptional cases that must be duly justified and must not affect other users with access to the band.

i) Radiotrans

Only in exceptional cases (open-cast mining, oil pipelines), subject to an additional compatibility study and while preserving the local character.

j) RTVE

Consider increasing LMP power in special cases for the coverage of a large event.

k) Telefónica

It would be desirable to launch studies on the introduction of high-power applications in the band in anticipation of future use of part of the band, in order to meet the specific needs of sectors such as defence and large-scale industry.

l) UHD Spain

The use of higher powers would only be justifiable in exceptional cases, where this is necessary on a case-by-case basis.

7. COORDINATION OF NEARBY LOCAL CONNECTIVITY NETWORKS

5G networks operating in TDD mode need to be synchronised to ensure operational compatibility. How do you think this synchronisation can be facilitated?

a) ACUTELAN

They refer to Note 14 to document RSCOM24-43 in which possible systems are listed.

b) AMETIC

They are concerned about potential interference with public networks operating below 3 800 MHz and do not believe that a frame structure and synchronisation should be imposed by default on private networks in this band.
In cases where there is a high density of private networks, operators should be encouraged to reach mutual agreements to prevent interference; if this is not possible, the relevant authority may require them to adopt a synchronisation regime.
To protect public networks from interference, they propose that the Ministry introduce measures such as allocating the first set of frequencies for private local area networks to the 4 000–4 200 MHz band; should such networks exist, synchronisation mechanisms should be required.

c) Axión

It considers synchronisation to be important in the networks covered by these bands.

d) Diggia-Gamma

Frame synchronisation mechanisms are considered necessary: outline common synchronisation frameworks and centralised technical coordination tools.

e) DigitalES

They do not believe that a common frame structure and synchronisation should be imposed by default on private networks operating in the 3 800–4 200 MHz band. In the case of densely deployed networks, the parties should be encouraged to reach a mutual agreement; otherwise, the relevant authority may require them to adopt the synchronisation regime it deems appropriate. They consider it essential that the Ministry safeguard current and future deployments of public networks in the 3 400–3 800 MHz band; in the event of interference, synchronisation may be required.

f) GSA

They consider that a common synchronisation frame structure should not be imposed by default on all networks, except in the event that no agreement is reached in dense deployments. They believe it is necessary for the Ministry

to implement measures to protect public networks in the 3 400–3 800 MHz band.

g) Huawei

There are concerns about the risk of interference on public networks operating below 3 800 MHz. Nevertheless, they do not believe that a common frame structure and synchronisation should be imposed by default on private networks operating in the 3 800–4 200 MHz band. This absence of restrictions offers flexibility to meet the needs of different private users. It is recommended that agreements be reached between licence holders to manage cases in densely populated areas.

h) MasOrange

Synchronisation with local networks is required, using a standardised pattern and harmonised transmission times to prevent interference.

i) Nokia

Synchronisation is the default mode of operation of 3GPP base stations in this band, by means of a common reference clock using GPS. The reference synchronisation frame structure used by MFCN services below 3 800 MHz could be used.

j) Radiotrans

Define one or two common profiles: DL/UL (downlink/uplink) and slot length. Impose EIRP limits at the border of the area if asynchronous operation is permitted.

k) Telefónica

For the synchronisation of 5G TDD networks, it is recommended that synchronisation be facilitated through technical standards and agreements between authorisation holders, for example, using GPS (used in band n78).

l) UHD Spain

The following are recommended to ensure compatibility with TDD networks:
- explicit synchronisation via GNSS (global navigation satellite system – GPS, Galileo);
- use of harmonised and coordinated TDD profiles;
- network synchronisation mechanisms in the absence of GNSS visibility.

8. CROSS-BORDER COORDINATION.

Given that neighbouring European countries have similar plans for services in the adjacent-band and that TDD 5G networks need to be synchronised to function properly, what do you consider to be the most appropriate mechanism for facilitating cross-border coordination? Do you consider the examples of coordination specified in the annex to the draft implementing decision to be sufficient?

a) ACUTELAN

They refer to document RSCOM24.43

b) Axión

It considers this irrelevant, as the anticipated demand is concentrated at the local level.

c) Diggia-Gamma

They deem it important, through bilateral coordination schemes, applying compatibility parameters and emission masks and incorporating a specialised technical office.

d) MasOrange

Existing bilateral coordination agreements should be maintained and updated, including specific TDD synchronisation parameters.

e) Radiotrans

Alignment with CEPT standards and exchange of TDD parameters.

f) Telefónica

It is recommended to adopt cross-border coordination mechanisms based on international examples and CEPT recommendations.

g) UHD Spain

It does not apply, as it is always local operation.

9. OTHER

Please refer to any other aspect not covered in the previous questions.

a) ACUTELAN

They consider it necessary to ensure the availability of frequencies not only for large-scale installations in general but also for other private and public entities, and to explicitly include local electronic communications and television operators among the potential rights holders, without having to rely on the mediation of national or regional operators or entities.

b) MasOrange

It is proposed that a permanent technical group be created consisting of operators and the administration, to supervise coexistence within the band. The strategic value and the promotion of deployment are recalled when setting fees. Nokia
It is recommended that the possibility of allowing the use of UAS in the 3 800–4 200 MHz band be assessed and considered, given the growing demand for such services (parcel delivery, mapping, search and rescue, and surveillance flights).

c) Radiotrans

They support the creation of a pilot scheme/proof of concept (PoC), with temporary authorisation for 15–90 days to facilitate the validation of local connectivity before applying for a longer-term authorisation.

1 900–1 920 MHz band

1. USE OF THE 1900–1910 MHz BLOCK.

Do you consider it appropriate to propose using the 1 900–1 910 MHz range for the Railway Mobile Radio (RMR) system? Within what time frame is the RMR system expected to be implemented? Does this amount of spectrum meet the needs of the RMR system? Do you consider it compatible with use in conjunction with UAS systems?

a) AMETIC

They support the use of the band for RMR, although they warn of the risk of interference with public mobile networks in the 1 920–1 980 MHz band. The ECC has already identified this problem and proposed mitigation measures. It is essential that mobile operators' rights be reserved in such a way that it is the RMR operators who adapt to the deployments.

b) College of Telecommunications Engineers

They welcome the introduction of the RMR system in the frequency range described under non-exclusive use.

c) Diggia-Gamma

They support the use of the band for RMR applications, taking into account the protection of existing services and cross-border coordination.

d) DigitalES

They support the introduction of RMR in that band. They warn of the risk of affecting public mobile networks. RMR operators should be required to adapt their deployments to existing networks and not vice versa.

e) GSA

They support the introduction of RMR in that band. They warn of the risk of affecting public mobile networks. RMR operators should be required to adapt their deployments to existing networks and not vice versa.

f) Huawei

They support the introduction of RMR in the 1 900–1 910 MHz band, although they warn of the risk of interference with public mobile networks. Restrictive measures should be required of railway operators rather than be imposed on others.

g) MasOrange

MasOrange warns of a significant risk of interference with public mobile networks. It is considered essential to define buffer zones between railway sites and mobile stations, to limit transmission power and improve coordination between services.

h) Nokia

They support the decision. The first networks are expected to be operational by 2029, with pilot projects due to start in 2026/2027. It recommends that MFCN and RMR operators consult with one another, as interference could occur in adjacent bands.

i) Radiotrans

They support the provision of non-exclusive RMR on demand with a simple procedure and short deadlines, with provision for coordination with adjacent UAS.

j) Telefónica

The provisions of the European Decision must be respected, but there are concerns about the risk of interference with mobile base stations. It is considered essential for all necessary safeguards for preventing interference to be included in the CNAF.

Furthermore, attention is drawn to the difficulties operators face when deploying their networks in the vicinity of railway lines, which adversely affects the quality of their service aboard trains. For this reason, it is

proposed that corrective measures aimed at railway managers be included in the CNAF to avoid restrictions on the deployment of operators.

2. USE OF THE 1 910–1 920 MHz BLOCK.

Do you consider it appropriate to propose using the 1 880–1 900 MHz and 1 910–1 920 MHz spectrum for Unmanned Aircraft Systems (UAS)? Do you consider it necessary to reserve spectrum specifically for government UAS? Do you consider this use to be compatible with the RMR system in the 1 900–1 910 MHz band?

a) AMETIC

They are concerned about the risk of interference with mobile base stations and recommend waiting for a harmonisation decision from the EC before proceeding. Should this situation continue, it is recommended that the restrictions set out in REC (24) 02 be taken into account and that power be limited in line with the recommendations in Report ECC 332

.

b) Axión

Considers it appropriate to allow its use for real-time transmission from drones, considers it appropriate for local services linked to disasters and emergencies.

c) College of Telecommunications Engineers

They consider it appropriate to use said band for UAS applications under the consideration of non-exclusive use whether for commercial or governmental applications.

d) Diggia-Gamma

They support using the band for the use of UAS systems, taking into account the protection of existing services and cross-border coordination.

e) DigitalES

They consider it premature and risky to introduce this new application in that band, and suggest waiting for a harmonisation decision. The main concern is the risk of interference at mobile stations in the 1 920–1 980 MHz band.

f) GSA

They consider it premature and risky to introduce this new application in that band, and suggest waiting for a harmonisation decision. If it is decided to

proceed, they consider it important to comply with the restrictions set out in ECC (24)02.

g) Huawei

They are concerned about the risk of interference at mobile stations receiving in the 1 920–1 980 MHz band. They consider introducing the new application in this frequency band to be premature and risky. However, should the decision be taken to proceed, they consider a number of restrictions to be necessary: use restricted to government users; restriction on the use of NR DECT-2020 technology; and limited UAS operating range.

h) MasOrange

They support the use of this band for UAS.

i) Nokia

They are of the opinion that using this band for governmental UAS could pose a risk of interference both for railway operations below 1 910 MHz and for MFCN above 1 920 MHz. If this use is authorised, it is recommended that an appropriate framework be established to ensure the continued operation of services in adjacent bands.

j) Radiotrans

They support commercial and governmental UAS.

k) Telefónica

Its use for commercial and government UAS (unmanned aircraft systems) seems reasonable. It is necessary to carry out prior compatibility studies.

3. OTHER

Other substantiated feasible approaches, as well as any other aspects not covered by the previous questions.

a) Radiotrans

The UAS/RMR rules should not limit the deployment of local licences (3.8–4.2 GHz) and self-provision in 2.3/26 GHz.