A hand in a dark suit jacket points upwards with the index finger. The background is a blurred blue-toned image of a person in a suit. Overlaid on the image are several white icons: a laptop, a smartphone, a group of three people, a globe, a camera, and a speech bubble. The text is centered in the upper half of the image.

Roadmap for the Process to Authorise the Use of the 700 MHz Frequency Band for Wireless Broadband Electronic Communications Services

Year 2018



MINISTRY
OF ECONOMY
AND ENTERPRISE

SECRETARY OF STATE FOR INFORMATION SOCIETY
AND DIGITAL AGENDA

DIRECTION GENERAL FOR TELECOMMUNICATIONS
AND INFORMATION TECHNOLOGIES



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1. EXECUTIVE SUMMARY

The **roadmap for the process to authorise the use of the 700 MHz frequency band¹** for wireless broadband electronic communications services **is part of the Spanish Administration's obligations set out under Decision (EU) 2017/899 of the European Parliament and of the Council²**, of 17 May 2017, on the use of the 470-790 MHz frequency band in the Union. Pursuant to the Decision, Member States shall adopt and make public their national plan and schedule (“national roadmap”) to release the 700 MHz frequency band.

The roadmap that is made public through this document has been drawn up by **considering the contributions received in the course of the public consultation held to that end.**

According to this roadmap, **the process to release the 700 MHz frequency band is intended to be completed by 30 June 2020**, in line with the schedule set out under the EU legislation. Among the most significant milestones included in such schedule is the **approval of various regulatory instruments within the next six months**. Among others, a new National Technical Plan for Digital Terrestrial Television will be approved, under which **the service current capacity will be maintained**. In this way, the Plan will be designed with the **purpose of maintaining the current number of national and regional multiplexes, and, consequently, the current offer of television channels, as well as the existing provincial and regional content capabilities**. Similarly, the availability of the 470-694 MHz frequency band for provision of such services will be ensured at least until 2030.

¹ 694-790 MHz band.

² <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32017D0899>



Under the roadmap, **a goal has been set to approve, before year-end, a compensation scheme to adapt the reception facilities at buildings to the new frequencies and to compensate for the changes required in broadcasters' transmission equipment**, in a way consistent with the applicable EU legislation.

The **effective process of migration of the Digital Terrestrial Television (DTT) services** using the 700 MHz frequency band to the new envisaged frequencies **is due to take place between January 2019 and March 2020**.

A tender will be called for the 700 MHz band in the future, to allow for effective use of the band by electronic communication services, in particular, the 5G services, **estimating that the licences will be awarded before 30 June 2020**.



2. BACKGROUND

In its Communication of 6 May 2015 entitled “A Digital Single Market Strategy for Europe”, the European Commission (EC) highlighted the importance of the 694-790 MHz (700 MHz) frequency band for ensuring the provision of broadband services in rural areas in order to ensure access and connectivity, and stressed the need for a coordinated release of that frequency band while accommodating the specific needs of audiovisual media distribution.

The process to release the band will be carried out by applying criteria that help maximise the efficient use of the spectrum; that respect and encourage effective competition among all market operators; that ensure its availability for priority purposes of general interest; that anticipate the needs of new technologies; and that provide flexibility over the new demands to come; carrying out this entire assignment process under the principles of transparency, efficiency and non-discrimination.

The Decision (EU) 2017/899 of the European Parliament and of the Council of 17 May 2017, on the use of the 470-790 MHz frequency band in the Union (hereinafter, “Decision 2017/899”) aims to ensure a coordinated approach to the use of this band in the Union in accordance with common objectives. **The 700 MHz frequency band should allow new innovative digital services to be developed in urban and in rural or remote areas, such as eHealth and mHealth, supported by mobile phones, patient-monitoring devices and other wireless devices.**

The 700 MHz band is currently being used by public and private broadcasting services, and, therefore, it will be **necessary to migrate those services to other frequencies below 694 MHz**, to allow for use of that band by electronic communications operators. To do that, a process being similar to that designed for the 800 MHz band (a process known as release of the first digital dividend) shall be implemented.



Article 5 of **Decision 2017/899** states that, **no later than 30 June 2018, Member States shall adopt and make public their national plan and schedule (“national roadmap”)**, for fulfilling their obligations under Articles 1 and 4 thereof, and that Member States shall draw up their national roadmaps after consulting all relevant stakeholders.

With the purpose of gathering feedback regarding the process to authorise the use of the 700 MHz (694-790 MHz) frequency band for wireless broadband electronic communications services and adopting this national roadmap, which establishes the plan and schedule to execute such process, a public consultation was held between November 2017 and February 2018. The report containing the contributions obtained from the public consultation is available on the website of the Ministry of Economy and Enterprise.



3. RELEASE OF THE 700 MHz BAND

The actions planned for the effective release of the 694-790 MHz band currently used by the DTT service, to allow the use of this band for the terrestrial systems being capable of providing wireless broadband electronic communications services, are divided into three groups, namely:

- International frequency coordination.
- National Technical Plan for Digital Terrestrial Television and regulatory measures required to release the second digital dividend.
- Action plan.

International Frequency Coordination

Since DTT signals are characterised by their long range, **there is a need to coordinate the use of these frequencies with neighbouring countries.** As far as Spain is concerned, this calls for coordination with the Administrations from the following countries: **France, Portugal, Italy, Andorra, the United Kingdom, Algeria and Morocco.**

Releasing the second digital dividend in Europe will **mean cutting down on 30% of the frequencies that are currently being used for DTT;** therefore, **it is necessary to undertake an international coordination process, so as to have a larger number of frequencies available in the band that will continue being used for DTT, in order to accommodate all the currently existing TV channels.** In view of that, this process will follow the criteria below:

- Maintaining the current number of digital multiplexes and the existing provincial and regional content capabilities.



- Avoiding, to the extent possible, self-interference issues identified between the different geographical areas into which the national territory is divided for DTT planning purposes.
- Reusing, as much as possible, the frequencies currently used on the 470-694 MHz band, which will continue being used by the DTT service.
- Using wider single-frequency networks, provided that the criteria above are met, in order to reduce frequency needs. This measure is needed to be able to maintain the current number of digital multiplexes.

The coordination process is quite advanced and was completed with all EU Member States in 2017, thus complying with what is established in paragraph 2 of Article 1 of Decision 2017/899. As regards non-EU countries, the negotiations with Andorra have already concluded, while the negotiations with Morocco and Algeria are expected to be completed by late 2018.

National Technical Plan for Digital Terrestrial Television

The new National Technical Plan for Digital Terrestrial Television will be approved by Royal Decree, and might come into force before the end of 2018. In line with the contributions received during the public consultation, **its primary objective will be to maintain the current number of digital multiplexes, including the existing provincial and regional content capabilities. Similarly, continuity will be ensured to the audiovisual sector, especially ensuring access by the DTT services to the sub-700 spectrum at least until 2030.**

Based on the proposed objectives, the key aspects to include in the Technical Plan would be, among others:



- **Frequency band:** Reserving the 470-694 MHz frequency band (radio channels 21-48) to the digital terrestrial television service. A regulatory provision will be adopted to ensure availability of the 470-694 MHz band for broadcasting services at least until 2030.
- **Digital multiplexes:** Maintaining the following DTT networks in the 470-694 MHz frequency band:
 - a) Seven digital multiplexes with national coverage, called RGE1, RGE2, MPE1, MPE2, MPE3, MPE4, MPE5.

The frequencies planned for multiplex RGE1 will allow for the existing regional content capabilities.
 - b) A digital multiplex with regional coverage, MAUT, in each Autonomous Community.

The frequencies planned for multiplex MAUT will allow for the existing provincial and content capabilities.
 - c) Digital multiplexes with insular and local coverage envisaged under the National Technical Plan for Local Digital Television, including any change required in radio channels.
- **Radio planning:** Identifying the radio channel to be used by each national and regional digital multiplex, within each geographical area. Identifying the radio channels to be used by the local digital television multiplexes that need to switch frequency, either because they currently use a channel located on the 700 MHz band, or as a consequence of the adjustments that need to be made as part of all the multiplexes planning in order to achieve efficient use of the spectrum.



- **Number of television channels in each digital multiplex:** Each digital multiplex, regardless of its scope of coverage, will have the capacity to integrate four television channels, whether in standard or high definition format.
- **Obligations relating to general coverage of each digital multiplex,** in terms of percentage of population, maintaining the currently existing ones:
 - 98% for RGE1 and for MAUT, in the case of public audiovisual communication service providers with regional coverage.
 - 96% for RGE2, MPE1, MPE2, MPE3, MPE4 and MPE5.
- The **conditions** under which providers of the television audiovisual communication service may use the remaining spare capacity of their digital multiplex to deliver related or interactive services other than television broadcasting, and to **broadcast simultaneously** the same content of their standard-definition digital terrestrial television channels **in high-definition** resolution.
- The **conditions** under which, where appropriate, providers of the television audiovisual communication service may **broadcast in ultra high-definition** within the capacity assigned to each of them on the digital multiplexes.
- The **conditions** under which the **Public Administrations** and their related entities **may undertake initiatives to distribute** the digital television service **among their citizens**, in areas where there is no digital terrestrial television coverage, observing the technological neutrality principle and applicable regulation.
- **Regulation of the 694-790 MHz frequency band release process** by the Spanish Radio and Television Corporation (RTVE), by licence holders of the television audiovisual communication service with national coverage, by the digital terrestrial television service with regional coverage, and by the digital terrestrial television service with insular and local coverage. The following will need to be established:



- A deadline to switch off the radio channels located on the 694 – 790 MHz frequency band operated by each television audiovisual communication service provider.
- An obligation for the new radio channels that will be put into service on each digital multiplex to reach a level of population coverage being at least equal to the existing coverage of the substituted radio channels, and the timeframes to achieve such coverage.
- The conditions under which providers of the television audiovisual communication service may use, on a temporary basis, the radio channels that are currently in use on the 694 – 790 MHz frequency band and have to be switched off, with the purpose of facilitating the actions to adapt reception facilities at buildings .

Simulcast obligations will be established in relation to the compensation awarded to broadcasters, if any, pursuant to this roadmap. A total period of 15 months for simulcasts should be appropriate, with a 6-month period of simulcasts for broadcasting centres whose area of coverage includes more than 500 TV collective receiving systems, and a 3-month period for broadcasting centres whose area of coverage includes between 100 and 500 TV collective receiving systems. A longer period of simulcasts may be considered for geographical areas having special characteristics.



Action Plan for Release of the Second Digital Dividend

In addition to the regulatory instruments, an Action Plan will be drawn up with a detail of the actions to take as a consequence of the approved regulations, the mechanisms for coordination and execution of the process, and the necessary resources to implement it. Its primary goal will be to allow for execution of the necessary actions, reducing, to the extent possible, the impact on citizens and stakeholders, based on the timeframes and requirements set.

The Secretary of State for Information Society and Digital Agenda (SESIAD) will be responsible for coordinating and monitoring the different actions aimed at completing the second digital dividend process. With such purpose, **a technical office will be created** to channel the collaboration and participation of stakeholders.

The main areas of action to consider for execution of this project are:

- **Actions within the frequency scope**, including, but not limited to:
 - Making the necessary adjustments in the geographical areas defined under the National Technical Plan, in order to adapt them to regional and provincial boundaries, so that multiplex RGE1 can perform regional content capabilities, and multiplex MAUT can perform provincial content capabilities. These adjustments will be included in SESIAD's resolutions authorising use of the public radio domain, and assigning specific channels to each broadcasting station.
 - Adopting the necessary measures to ensure use of the new radio channels envisaged under the National Technical Plan, free of interference. To that end, these channels will be monitored within the geographical areas defined for their use, and the necessary measures will be implemented to switch off



the television stations which may be broadcasting without licence on the second digital dividend band.

- **Actions within the technical scope**, including:
 - Promoting harmonised deployment of all the multiplex on the new radio channels that will be put into service in the different geographical areas, with the purpose of facilitating the process to adapt reception facilities at buildings by citizens and ensuring the effectiveness of the communication actions.
 - Fostering coordinated simulcasts in each geographical area, for all the digital multiplexes that need to switch frequency in the area. If compensation is awarded to cover simulcast-related costs, obligations would be imposed to that end.
- **Monitoring and control actions**, including, but not limited to:
 - Definition of monitoring indicators that will make it possible to know, at all times, among others, the current state of deployment of broadcasts on the new radio channels, the simulcasts being performed and their duration, the process to switch off on frequencies on the 694-790 MHz band, the level of adaptation of reception facilities at buildings, and the degree of citizen awareness of the process. Based on these indicators in each geographical area, the need to take any additional specific coordination action will be assessed.
 - Establishing the structure for coordination, monitoring and control, for providing support to the Technical Office, and for stakeholders' participation in the process. With such purpose, a "Group for Coordination and Monitoring of the Second Digital Dividend Release Actions" will be created, and within this group, at least the following work teams will be created to monitor:



- Deployment of channels on the new frequencies and of simulcasts.
- Adaptation of reception facilities at buildings.
- Communication actions targeted at citizens, enterprises and other stakeholders.
- **Communication actions**, ruled by a detailed Communication Plan designed to inform on the actions that will be taken throughout the process. The core of this Plan will be a Public Relations campaign to help create and disseminate a unified, accurate and consistent message for communication media, relying on the use of digital media (websites, social networks, etc.), creation of region-based information packages for local entities, development of actions together with the Autonomous Communities and Government Offices, an institutional advertising campaign, etc. Additionally, a user helpline will be made available to provide citizens with all the necessary information they may need, and resolve any specific incident that may arise.



4. EVOLUTION OF DIGITAL TERRESTRIAL TELEVISION

The public consultation addressed matters concerning the DTT technological evolution, with the purpose of introducing a debate on this matter among stakeholders. According to the contributions received, it was not considered convenient to include significant measures about DTT technological evolution in the national roadmap derived from Decision 2017/899, since they are regarded as clearly differentiated processes.

Considering the opinions received during the public consultation, **measures will be implemented with the aim of encouraging and facilitating that television receivers incorporate the new encoding and transmission technologies.** This will make it possible for all digital terrestrial television broadcasts to migrate to these technologies in the future, thus allowing for a more efficient use of spectrum.

Similarly, it is expected that **the National Technical Plan for Digital Terrestrial Television includes elements to enable DTT promotional broadcasts by using advanced standards.** With such purpose, the Plan may offer the possibility and define the conditions for broadcasting ultra-HD events, and may plan some frequencies for experimental broadcasts using the new encoding and transmission technologies in specific geographical areas depending on spectrum capacity.

Among other matters, the procedure to grant authorisation for such experimental broadcasts would have the objective of fostering and facilitating introduction of these new technologies, while guaranteeing participation and equal opportunities to all stakeholders.



5. COMPENSATION FOR COSTS OF THE 700 MHz BAND RELEASE PROCESS

Decision 2017/899 includes issues relating to the costs of the migration process, providing that the national roadmaps should cover information on the possibility of compensation for migration costs, where such costs would arise, in order to avoid, among others, costs for end users or broadcasters.

The roadmap addresses the possibility of compensation for migration costs insofar as it is possible to complete the notification and approval procedures set by the European Commission. The necessary regulations on this regard are envisaged to be adopted by the end of 2018.

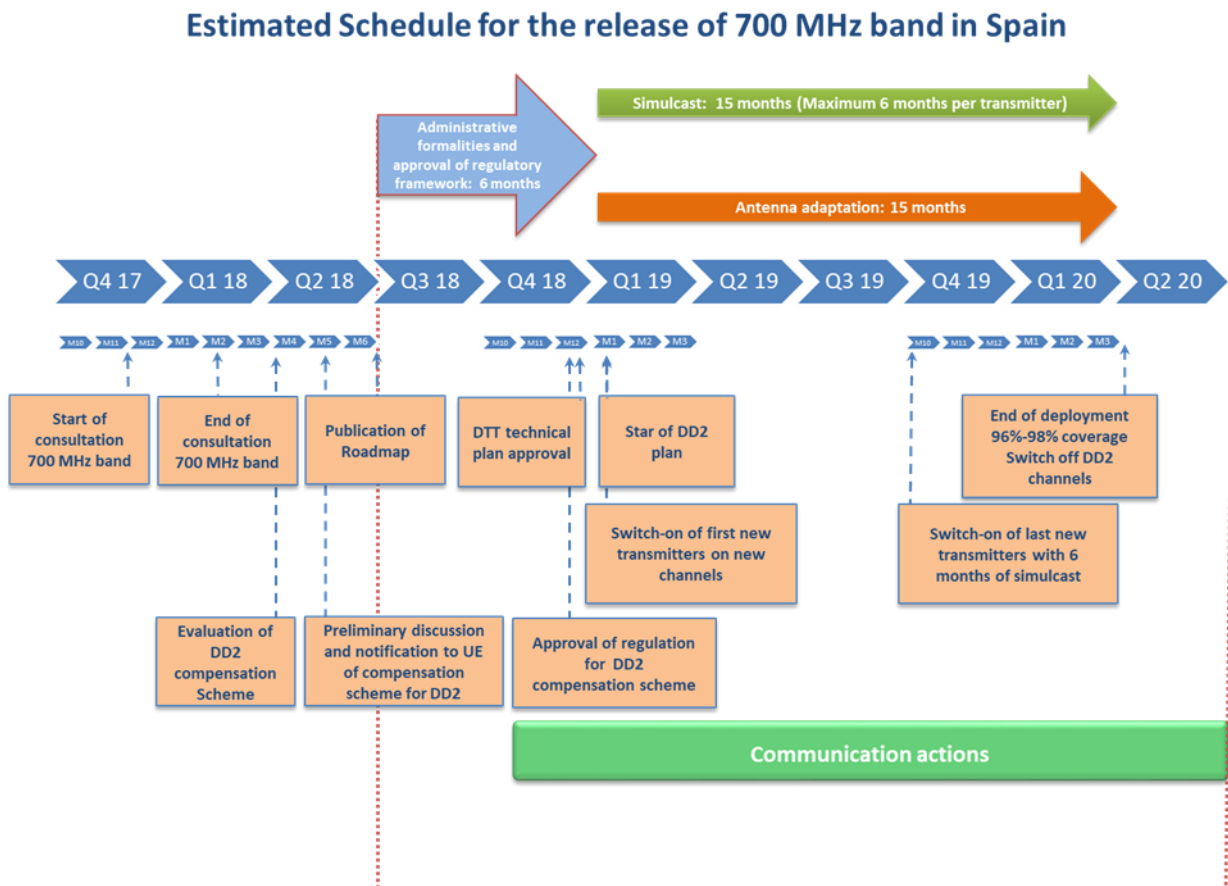
In particular, it is foreseen to:

- Compensate for the costs derived from reception of or access to the television audiovisual communication services at the buildings affected by the release of the 700 MHz band.
- Compensate for the costs derived from the changes required in the transmission equipment of audiovisual communication service providers, as a consequence of the frequency changes resulting from the release of the 700 MHz band.



6. ESTIMATED SCHEDULE OF THE RELEASE PROCESS

The figure below shows the schedule set for the 700 MHz band release process, according to the information contained in this document. It details the specific dates by which the actions are initially estimated to be completed:



The most significant milestones of the process are:

- **30 June 2018:** Deadline set under Decision (EU) 2017/899 for publication of the “NATIONAL ROADMAP”.
- **October 2018:** Beginning of communication actions.



- **December 2018:** Publication of royal decrees on compensation for costs of the 700 MHz band release process.
- **December 2018:** Publication of the royal decree approving the National Technical Plan for Digital Terrestrial Television, and the measures for release of the 700 MHz band.
- **January 2019:** Beginning of the second digital dividend release process.
- **January 2019:** Starting of the first simulcasts on the new frequencies.
- **October 2019:** Switch-on, if applicable, of the last transmitters with 6-month simulcasts.
- **March 2020:** End of deployment, switch-on of emissions of the last transmitters without simulcast period, and switch-off of broadcasts on the 694-790 MHz band.
- **June 2020:** Deadline set under Decision (EU) 2017/899 for availability of the 694-790 MHz band for electronic communications services.

The most significant continuing actions are:

- **30 June 2018 – 31 December 2018:** Drafting and approval of regulatory framework.
- **15 October 2018 – 30 June 2020:** Communication actions.
- **1 January 2019 – 31 March 2020:** Period for simulcasts and adaptation of reception facilities at buildings.

The tender for the 700 MHz band for electronic communications services will be decided at a later stage, based on the level of progress of the band release process. The tender specific date will be defined so that the band can begin to be effectively used for these services, in any case, no later than 30 June 2020.