



**GSMA response to the Draft RSPG Opinion on the strategy on  
the future use of the frequency band 470-694 MHz beyond  
2030 in the EU**

25 August 2023

## About the GSMA

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry, and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

We invite you to find out more at [gsma.com](https://gsma.com). Follow the GSMA on Twitter: [@GSMA](https://twitter.com/GSMA) and [@GSMAEurope](https://twitter.com/GSMAEurope)

## Introduction

The GSMA welcomes the opportunity to comment on the RSPG's draft Opinion on the Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU. We hope that the following detailed comments can serve as a constructive contribution to the RSPG's deliberations on its draft.

Sufficient low-band spectrum availability is necessary for delivering the growing demand for mobile broadband services in rural areas and for enhancing mobile broadband indoor coverage. Low band spectrum will be a key enabler for digital equality, reducing the gap between urban and rural areas and delivering affordable connectivity. Without sufficient low-band spectrum, the digital divide is likely to widen, and those living in rural areas will be excluded from the latest digital technologies. Low-band spectrum serves two key requirements for 5G deployment:

1. Propagation characteristics making it particularly suitable for providing coverage in rural and remote areas, which is important in countries that have large rural populations.
2. In-building penetration, providing 'deep' indoor coverage as well as capacity in urban areas.

Low band 5G is expected to generate circa \$130 billion in GDP in 2030.<sup>1</sup> Half of the impact will come from massive IoT (mIoT), with many existing and future IoT use cases requiring wide area coverage, in addition to population coverage. The rest of the economic impact will be driven by enhanced mobile broadband (eMBB) and fixed wireless access (FWA), as low bands will play a critical role in delivering high-speed broadband connectivity in areas underserved by fixed networks.

While the EU UHF Decision<sup>2</sup> protects broadcasting until 2030, it also requires that efficient spectrum use is ensured and that changes in consumer behaviour as well as the requirements in connectivity to foster growth and innovation in the Union are adequately considered. The mobile industry aims at extensively deploying and efficiently using all available low band spectrum that has been made available to mobile operators well before 2030. Although refarming will provide an increase in spectral efficiency, it will not be sufficient to meet the expected increase in traffic demand. Increased spectrum availability in low bands is the optimal way to meet traffic demand expectations.<sup>3</sup> In addition, it is important to note that, depending on operator and country, there may be some barriers to

---

<sup>1</sup> [The Socio-Economic Benefits of 5G Services: The importance of low-band spectrum](#), GSMA, March 2023

<sup>2</sup> [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](#)

<sup>3</sup> See for example [Future Utilisation of the 470-694 MHz Band in the UK](#), Coleago Consulting, November 2022

refarming such as the low penetration of 5G devices in rural areas and the need to serve IoT legacy technologies.

At the same time media consumption patterns are changing, and there is large variation in Digital Terrestrial Television (DTT) popularity between Member States. Other TV distribution platforms (e.g. cable, IPTV, satellite) are more popular than DTT for linear TV viewing in many countries. In addition, people throughout the EU increasingly use more on-demand video content and streaming services. This increases data consumption, including in mobile networks, but also raises the question as to the reasonable number of linear TV channels from the perspective of spectrum and socio-economic efficiency.

In particular, only a few channels reach a significant proportion of the population and a large part of the transmitted content is also available on broadcasters' on-demand platforms. In addition, the efficient distribution of TV content in the future should be considered in the broader EU policy context. For example, the EU's Digital Decade target of full gigabit connectivity by 2030 will ensure sufficient capacity for all end users for TV content reception via a broadband connection.

It is challenging to ascertain what exactly the future will look like, but an acceleration of the trend and even a radical change in the distribution and consumption of ad-financed audio-visual services is possible. Given changing consumer behaviours and the variety of national circumstances, the GSMA considers that the RSPG Opinion is an opportunity to prepare for the possible introduction of mobile by 2030 and prevent unnecessary delays.

In this context, we consider that the Opinion should include and analyse a fourth scenario with mobile allocation after 2030. Such an analysis should include an evaluation of the situation in different countries after 2030. To that end, it would be valuable for the RSPG to generate a map of Europe based on DTT consumption patterns and indicating where a logical boundary could be between mobile versus broadcast countries after 2030.

In addition, we consider that it could be of use for the RSPG to consider the inclusion of a more detailed summary regarding developments in how the band is used for terrestrial provision of broadcasting services and an analysis on how the use of other means and technologies to receive and view video content has developed. It may also be useful to analyse whether national media policies and legislation are neutral towards different distribution means, and if not, whether the technology specific obligations/priorities are still justified.

## Existing solutions for flexibility

The GSMA has a number of comments in relation to Section 3 of the draft Opinion and the opportunities and limits presented by the existing solutions.

### **Geneva 2006 Agreement (GE06) – Envelope concept**

The GE-06 envelope concept in principle offers flexibility, but we note that it is not usable for nationwide mobile communication. In addition and as noted in the draft Opinion, it is limited to primary services. Without a primary allocation to the mobile service, it therefore does not support a long term spectrum strategy for enabling mobile use in the future.

### **Supplementary Downlink (SDL) implementation**

It is important to note that SDL in interleaved spectrum is not a feasible solution from a technical perspective and therefore not suitable for harmonisation at the EU/CEPT level. First, the associated interference into DTT reception would be unmanageable as different channel filters would need to be implemented in different areas, while interference from DTT into mobile devices would be difficult to manage as DTT channels can be everywhere in the UHF band. In addition, mobile devices and radio equipment that are able to use any part of the frequency range 470 – 694 MHz would become more expensive than for a harmonised band.

SDL in a block of spectrum is a feasible option for additional downlink capacity for mobile as it provides flexibility for usage of either broadcasting or mobile DL only. However, it is only suitable for one-way communication.

### **5G Broadcast**

The GSMA is of the view that 5G broadcast as a technology for broadcasting does not present a clear business case as a substitute for DVB-T. This is due to the additional cost of deployment as compared to a currently deployed DVB-T network for the same use case and revenues. In addition, replacing one linear TV platform with another linear platform in the context of changing viewing behaviours and where viewer preference is moving heavily towards on-demand, would appear to be a less than optimal solution.

Widespread or nationwide 5G broadcast with envelope concept (which would not require cross-border coordination as indicated in the draft Opinion) is likely not an efficient solution, given decreasing terrestrial TV usage. Furthermore, it is already possible to consume TV content in either a linear or non-linear manner on mobile devices by streaming directly from the content provider or via OTT apps.

We note that while 5G broadcast could perhaps be part of a solution in conjunction with SDL in order to enable additional flexibility, a better approach to ensuring flexibility through existing technical solutions is the implementation of a 600 MHz band plan.

#### **Dedicated band for mobile service with uplink – 600 MHz band plan implementation**

It would appear that the RSPG considers that there are too many difficulties present to implement this option. However, the GSMA considers that this would be the preferred option among the existing technical solutions. It already has a developed ecosystem (e.g. USA, Canada) and is technically feasible without switching off DTT.

Low DTT usage countries i.e. those countries interested in mobile implementation are generally geographically clustered together (See Figure 1). The GSMA considers that such countries could implement an FDD 600 MHz band plan. While coordination with neighbouring countries with higher DTT usage would still be necessary, it would be simplified.

**Figure 1 High and low DTT penetration countries**



Source: Omdia

This is discussed further below in relation to possible scenarios for post 2030 and in particular Scenario 3.

## Possible and technically feasible scenarios for post 2030

The GSMA notes that the three included scenarios do not address the case in which there is no demand for DTT anymore, as is already the case in some European countries today. More generally, it appears that the included scenarios are not analysed to the same extent. For example a detailed set of factors leading to the evolution of a specific scenario should be included for each and in all cases each factor should be adequately justified.

The GSMA considers that one additional driver for the future scenarios is the need for further spectrum for mobile services, as discussed earlier and in particular as an enabler of digital equality. In addition, from the perspective of the twin digital and green transition, the sustainability and energy consumption advantages of a fibre based distribution of content as compared to DTT in addition to the cost of maintaining the DVB-T networks should be considered.

In relation to the future scenarios considered, the GSMA has the following comments on Scenarios 1 and 3.

### **Scenario 1: Prevalent broadcasting**

Although it is possible that DTT remains relevant for a period of time in some countries and some DTT will possibly need to be maintained over the longer term for the provision of public broadcast while all consumers make the transition to a fibre and IP-based content distribution, it is anticipated that the DTT usage scenario will still be greatly reduced with only a few public TV channels transmitted through DTT.

There is therefore a need to consider the efficiency of having continued DTT operations as well as efficiency in spectrum usage in a scenario where there is equivalent coverage and penetration of a fibre distribution content service. In particular, there is a need to consider the energy consumption related to maintaining DTT transmissions. In particular, the number of receivers needs to be taken into account. If there is only a very small amount of viewers for part of the content, the energy efficiency may be questionable.

In addition, the draft Opinion states that “DTT is an easy to access and inexpensive platform for consumers.” However, it should be noted here that there is a need to consider the high costs of operating and maintaining the DTT network, which are ultimately passed on to consumers either through TV specific taxes or inclusion in the general taxation regime. The claim in relation to “easy to access” is also not explained in the Opinion, e.g. in relation to other platforms.

### **Scenario 3: Broadcasting limited, Mobile (Full FDD band plan)**

This scenario is only considered in the context where “there is less (up to no) need for broadcasting in the 470-694 MHz in a given country”. However, the GSMA notes that implementing a full FDD band plan is possible without DTT switch off. This had already been done in the United States and Canada without phasing out Terrestrial TV.

In addition, implementing a 600 MHz FDD band plan would still leave 140 MHz for DTT, thereby allowing 17 channels of 8 MHz in the UHF band. Depending on the DTT frequency plan this would allow the continued operation of several multiplexes, in theory up to 17 for a single frequency network.

## **Recommendations on possible technically feasible scenarios for post 2030**

As the majority of the recommendations are already looking at the longer term (i.e. after 2030), the GSMA considers that a more strategic view is needed as to how to proceed and ensure that the varying needs of different countries can be addressed in the most harmonised way possible. In this context, the GSMA has the following comments on the recommendations.

Regarding Recommendations 1 and 2, dealing with the situation until 2030, there is a need to expand on this through the inclusion of proposed initiatives in the shorter term that would better enable efficient use of spectrum.

As a general comment and regarding Recommendations 3 to 10, dealing with the situation post 2030, we consider that the Opinion is missing an analysis and evaluation of a scenario of predominant mobile use in Europe post 2030. This should include an evaluation of the situation in different countries after 2030 and a map illustrating where the logical boundary between mobile and broadcast countries would be after 2030. This would also further support the discussion and planning between countries.

In relation to Recommendation 3, we agree that a single scenario may not be applicable across all EU Member States, given the heterogeneous demands. Nonetheless, we consider that the RSPG Opinion should contain a proposal for a way forward to ensure that countries wishing to implement mobile, including through the 600 MHz FDD band plan option, can do so. This could be facilitated by border countries changing the DTT frequency plan at the borders as needed. This change may be easier if decreasing DTT demand in the neighboring country releases resources below 600 MHz.



The current balance of rights between low DTT and high DTT countries is set in article 4 of the UHF Decision. In essence, it determines that low DTT countries can only introduce different services from broadcasting if they do not cause harmful interference or claim protection from, broadcasting services in neighbouring countries. That framework is in place “at least until 2030”, and its review (Recommendation 10) is a very relevant milestone that will shape expectations on the future availability of UHF for mobile broadband services. We encourage the RSPG and the European Commission to start preparing and establish appropriate milestones to avoid unnecessary delays in the future.

There is a protection requirement to enable mobile use in neighboring countries post-2030. We therefore consider that it would be worth analysing the need for possible changes for DTT in countries where DTT remains popular after 2030, noting that a set of countries are reducing/switching off DTT around 2030. We consider that it would also be useful for the RSPG to propose a path for harmonisation towards a transition to mobile services, which may include commercial IMT, PPDR and military applications, across Europe on the basis of this analysis, even if the implementation is phased. This could include for example a proposal that countries wishing to introduce mobile services should be using the 600 MHz FDD band plan and that border countries should facilitate the introduction of mobile, as far as possible, by freeing up at least the mobile uplink.

We encourage the RSPG to consider all options that would allow high DTT countries to keep broadcast services in UHF beyond 2030, if they so wish, but without undermining the case for the introduction of mobile broadband in neighbouring countries. One possibility would be to change the balance of rights in article 4 and grant some protection to low DTT countries that wish to introduce services other than broadcasting. In order to minimise the costs to high DTT countries, the protection could potentially be limited to parts of the UHF band (e.g. only 600 MHz).

In relation to Recommendation 4, we agree that the ITU Radio Regulations are relevant for successful coordination negotiations in EU border areas. However, we consider that there is scope to further expand on this particular point e.g. supporting a Mobile co-primary allocation either in WRC-23 or WRC-27 in order to provide the EU border countries with the tools to negotiate. We would also suggest an addition recognising the value of a co-primary status for mobile services when coordinating with non-EU neighbours. In turn, we consider that Recommendation 9 should be amended accordingly.

Regarding Recommendations 5 and 6, the GSMA notes that the need for audio applications is typically very local, and often also time limited. DTT spectrum use is inefficient in the sense that it leaves white spaces, which PMSE locally uses, in principle everywhere – however when DTT use decreases it does not make sense to reserve nationwide spectrum for local PMSE spectrum needs. There is therefore a need to consider possible sharing approaches

with mobile (e.g. mobile demand for UHF spectrum is larger in sparsely populated areas whereas PMSE services are often in densely populated areas). Beyond 2030, there will also be new technical solutions, for example based on 6G and which will likely have better capabilities (e.g. capacity and latency) to serve audio PMSE demands than today.

In addition and in relation to PPDR, it should be noted that there are other approaches to meet these demands e.g. within public mobile networks. In this regard the ways to ensure priorities exists and some countries have in fact already decided to use commercial networks. This is also a more economical approach instead of having nationwide dedicated coverage.

Regarding Recommendation 8, the GSMA considers that the focus should also be on DTT efficiency. For example, the RSPG notes technological advancements such as DTV-T2/HEVC as having an important role to play post-2030. However, it should be noted that these technologies have been available from circa 2010 and therefore cannot be considered as technological advancements in a post-2030 environment.

Under Recommendation 10, we note that there is an urgent need for the Commission to progress the review of the EU UHF Decision, with the support of Member States. We therefore welcome the RSPG's willingness to contribute to this process.