

‘No change’ to the UHF band at WRC-23 enables the ongoing success of essential broadcasting services

Background

This position paper summarises the importance of protecting the sub-700 MHz (470-694 MHz) UHF band for Digital Terrestrial Television (DTT) and its shared use by content production systems such as wireless microphones (PMSE). It has been compiled by Broadcast Networks Europe (BNE) to provide a basis for informed decisions at the upcoming World Radio Conference 2023 (WRC-23), where possible regulatory decisions affecting use of the sub-700 MHz band in countries belonging to the ITU Region 1 (Europe, Africa, Middle East) will be discussed under the conference agenda item 1.5.

Introduction

Universal access to free-to-view television underpins Europe’s public service broadcasting system which in many countries is primarily delivered by Digital Terrestrial Television (DTT).

Today, DTT services are used by 184 million people in the EU 27¹ (245 million in CEPT 46 countries²) to access essential programming including trusted news, information, entertainment, and live events, such as sport, that all bring communities together. Its use is spread across the whole population, but it is particularly important and relied on by older viewers and the less well-off. For many European citizens it is a daily lifeline to the outside world – their main source of information and companionship.

Despite being an essential service for many, DTT could be under threat at the next WRC-23³, when administrations come together to debate the future use of the sub 700 MHz radio spectrum (470-694 MHz) on which DTT signals are carried. In particular, they will be considering a co-primary allocation for mobile services at the demand of some countries⁴.

At WRC-23 it will not only be DTT that is under threat. The radio frequency spectrum used to deliver DTT to European citizens is also shared with Programme Making and Special Events (PMSE), being both services a key pillar of the European cultural and creative industry sector. PMSE relates to all live music performance, TV shows, news programmes, sporting events, theatre productions and more. Any event using radio microphones and a sound system would be affected. PMSE relies on this low frequency spectrum and if the sector were to lose access to this, there would be nowhere else for it to go.

In preparation for WRC-23, European policy makers in national delegations, in CEPT, in RSPG, in the Commission and the Council, will debate among themselves and consult stakeholders and other administrations, to establish a European position.

In that course, BNE has developed this position paper, which establishes three key facts:

1. The current allocation of the 470-694 MHz band fosters valuable services, including public service broadcasting and PMSE, across the EU and the rest of ITU Region 1.
2. A change to co-primary status of the 470-694 MHz band in Region 1 would hurt the existing services and the delivery of essential public policy objectives.
3. The benefits of a change to co-primary status of the 470-694 MHz band in Region 1 have not been demonstrated, let alone the necessity and proportionality of such a measure.

For those reasons, BNE believes maximising the public value of the UHF band means ensuring the continued delivery of broadcasting and PMSE services across the EU. BNE therefore supports a position of ‘No Change’ to the Radio Regulations under WRC-23 agenda item 1.5.

1 The current allocation of the 470-694 MHz band fosters valuable services, including public service broadcasting and PMSE, across the EU and the rest of ITU Region 1.

1.1 Digital Terrestrial Television is a worldwide, Region 1 and European success:

- DTT enables public service broadcasting to fulfil a fundamental goal – to ensure that high-quality content and services, that inform, educate, and entertain, are widely available. As a result, broadcast networks in many countries will continue to play an important role for many years to come. DTT use of the UHF band is critical for the efficient delivery of linear services to large audiences with near-universal reach. Further, its robustness and resilience support redundancy in the delivery of essential information and content in any circumstances.
- In Europe, there is no comparable platform to DTT. While there are a range of content platforms now available, broadcasting services continue to be the primary content delivery platform for many due to its reach⁵, reliability, and free-to-air programming offer⁶.
- DTT plays a strong role as a platform serving the main TV set, either exclusively or in combination with other platforms. The total penetration is even higher as it is also used on secondary TV sets and in second homes.
- Also, outside of EU, broadcasting remains extremely dynamic. For instance, in Region 1, 41 out of 48 countries in Sub Sahara Africa have launched DTT⁷, including 18 countries since WRC-15. The African Union of Broadcasting recently outlined the importance of ‘no change’ to the sub 700 MHz band. In the rest of the world, terrestrial broadcasting is also healthy⁸; for instance, it has been growing in the USA and this is foreseen to continue⁹ as the complementarity of DTT and online video-on-demand services is more and more appreciated by citizens.

1.2 Broadcasting is innovating to maintain its long-term attractivity, and current EU policy is supportive of continued access to spectrum:

- Terrestrial broadcasting is evolving to support higher picture and audio quality (enhanced HD, UHD TV, improved sound), and to deliver the best user experience in both linear and non-linear modes (for example by offering interactivity using HbbTV¹⁰).
- In addition, the development of a new broadcasting standard, 5G Broadcast, aims at providing an optimal way for citizens to access broadcast content via their mobile devices¹¹ and cars.
- With those evolutions, DTT will continue to be important to audiences for a long time. This is also shown in the results of the ITU questionnaire on needs for DTT (95 Countries in Region 1 have indicated a need for 224 MHz or more for DTT in the future¹²).
- In Europe, ensuring sufficient spectrum is available for the terrestrial provision of innovative audio-visual services is part of the RSPP¹³ (article 7), while the UHF Decision¹⁴ guaranteed long term access to the 470-694 MHz band for terrestrial broadcasting, at least until 2030¹⁵.

1.3 Broadcasting shares spectrum efficiently with PMSE:

- Broadcasting has shared its UHF spectrum with PMSE for decades. PMSE is essential for content production, including TV, film, sport events, news, theatres, live music, and more.
- PMSE cannot share spectrum with mobile networks due to interference. Without PMSE the creation of a significant amount of content enjoyed today would not be possible.
- The current allocation of UHF spectrum to DTT therefore serves a permanent “PMSE” dividend, which is valuable and significant in every country. For example, it has been estimated that if isolated, the equivalent PMSE spectrum requirement in Germany amounts to more than 100 MHz of sub-700 MHz spectrum¹⁶.
- Other services are also operating within the UHF spectrum band, including white spaces devices, wind profiler radars or radioastronomy. Alternative spectrum bands would need to be found for these services if there was a change in the use of the UHF band.

2 A change to co-primary status of the 470-694 MHz band in Region 1 would hurt the existing services and the delivery of essential public policy objectives.

Some proponents of a change to co-primary have argued that such a change would have no negative impact on Europe because it would not create an obligation to change the UHF spectrum regulations (i.e. countries could continue to use the spectrum for DTT if they wish). BNE challenges that view for the following reasons.

2.1 Regulatory considerations:

- Such a change to co-primary has happened twice before (the 700 MHz and 800 MHz bands, the so-called *Digital Dividends*), and in both cases it resulted in clearance of broadcasting and PMSE from the affected-band in favour for mobile services. Without definite preventive measures, policy based on the assumption that what happened twice is not necessarily going to happen a third time would be questionable.
- The UHF Decision established an allocation of the UHF band with de-facto primary status of the 700 MHz band to mobile broadband and PPDR and exclusive primary status for the sub-700 MHz band to broadcasting. Noting the history, it is questionable whether a European position favouring co-primary at WRC-23 for the sub-band would comply with the intent of the law to establish a stable European framework on the use of the UHF Band (i.e., valid at least until 2030, and by default extending beyond 2031 in the absence of a review that is not part of the decision¹⁷),
- Similarly, a change to co-primary would in all likelihood influence any future discussions in the EU. Such a change would accelerate both the timing and introduce a bias in a future EU debate, thus undermining the proper process and timing that would be appropriate for European needs.

2.2 This would create an existential threat to the remaining spectrum available to deliver terrestrial broadcasting services and PMSE:

- DTT spectrum has been significantly reduced over the past 15 years – by more than 40% – to further support mobile services. Further reduction would have a significant impact on the services that can be distributed through the platform and its ability to compete, innovate and develop.
- Broadcast and mobile services cannot share the same frequencies without causing harmful interference to each other, in some instances over several hundred kilometres. Region 1 is characterized by a very large number of countries sharing land masses. In such a case, the co-primary status does not lead to a stable situation.
- Either there would be interference problems between two neighbouring countries if they opt for different use of the band; or the band needs to be allocated to one single service across a subregional block, leading to the de facto eviction of one service.
- Such threat can only be interpreted negatively by markets, stakeholders, and users of the DTT platform, who have only recently invested to adapt to the clearance of the 800 MHz and 700 MHz bands with also significant mobilization of public funds.
- Therefore, there will be immediate damage to the prospects of the DTT platform, while further investment will likely become very difficult or frozen.

2.3 Such change would threaten the European audio-visual industry, European public service broadcasting and cultural sectors:

- The EU law requires that spectrum management decisions take full account of possible social and economic consequences.
- In 2014, Pascal Lamy in his report emphasized the value of the UHF spectrum in the European Audio-Visual Model, an analysis which remains relevant and valid. According to the latest EAO report¹⁸, 13 European Audio-Visual Players rank among the top 50 worldwide. 12 are active on the DTT platform, illustrating the reach and strategic value of this platform for the European audio-visual sector.
- This contrasts with the market situation in the streaming market, which is dominated in Europe by 4 non-EU players totalling 72% of the SVOD subscriptions¹⁹.
- It is noteworthy that the EBU, as the voice of European Public Service Media, has identified the risk of a change in ITU regulations for the public service mission and has argued for a position of 'No change'²⁰.
- More generally, the positions taken by many national alliances²¹, and in the European coalition Wider Spectrum Group²², testify that a co-primary allocation poses a serious risk to the varied interests of consumers, workers, and businesses in the Media, Content and Cultural fields.

2.4 It would be contradictory with the objectives of fighting climate change:

- It has been established in the LoCaT study²³ that delivery of content via DTT consumes substantially less energy, when compared to IP-delivered methods. The modelling suggests this will remain the case in the long term under a range of scenarios.
- TV distribution networks and internet platforms can complement each other with environmental benefits stemming from DTT. The hybrid TV approach combining DTT for linear consumption and internet-based platforms for non-linear consumption appears to be the most sustainable way to deliver audio-visual content and aligns with consumers viewing habits.
- Conversely, policies not supportive or detrimental to terrestrial television could pressure consumers to increase their use of other platforms, which would result in higher overall energy consumption.

3 The benefits of a change to co-primary status of the 470-694 MHz band in Region 1 have not been demonstrated, let alone the necessity and proportionality of such measure.

A significant proportion of the sub 1 GHz UHF spectrum, i.e., 694-960 MHz, has already been allocated to terrestrial mobile services giving them primary access to a series of harmonized bands for wireless broadband services (the 900, 800 and 700 MHz bands).

3.1 The Region-wide benefits of allocating more spectrum to mobile services have not been demonstrated:

- The 800 MHz band remains to be assigned in many countries in Region 1. The same is true for 700 MHz band, though for even more countries²⁴.
- It is a common misconception that more and more lower frequency UHF spectrum is the needed solution to deliver mobile broadband coverage in rural areas. Poor coverage in rural areas is caused by lack of infrastructure, not a lack of spectrum. In practice, despite 3 bands having been identified for mobile broadband in the sub 1GHz band, many rural areas are not being covered by wireless broadband, and in some cases not even by 2G/3G networks²⁵. This contrasts with the promises of bridging the Digital Divide made before the decisions leading to the two Digital Dividends (clearance of DTT from the 700 MHz and 800 MHz bands to deploy mobile services).
- This casts a doubt on the allegation that more spectrum for IMT would be needed as a solution for coverage and capacity when the other bands also introduced to fight the Digital Divide are not fully rolled out, and in many cases not even assigned.
- For other, non-IMT, mobile services, there is little evidence supporting the new needs or current use of already identified bands such as 694-960 MHz band²⁶, the spectrum between 410 - 470 MHz or in other bands between 1 GHz and 2 GHz²⁷.

3.2 In response to possible national needs, the necessity of regional co-primary is not demonstrated:

- At the individual national level, the RR and GE06 contain sufficient provisions to afford flexibility to countries to introduce national uses as long as they protect services in neighbouring countries.
- EU's current flexible framework is an example of a regulatory framework, introduced at the request of non-broadcast stakeholders and accepted by all Member states, which allows the national introduction of other services in as much as it is compatible with own and neighbouring broadcast needs. No more flexible framework have been found and, a co-primary Decision would put at risk all the current users of the band.

3.3 The proportionality of a change to co-primary is not demonstrated in view of the potential consequences:

- It does not seem proportionate to introduce a measure which, based on history, puts at risk the expected needs for broadcasting spectrum of the large majority in Region 1 (95 nations) in response to the request of a minority.
- Less disruptive measures may exist which have not been explored. For instance, the RSPG is just starting the reflection on how to implement the flexibility option foreseen in the UHF Decision, if needed. Preliminary studies have also shown that a great theoretical potential for additional capacity exists for IMT, PPDR and other mobile service users within the current allocations by defragmenting the band plans in 700, 800 and 900 MHz²⁸ or through national decisions without change of the Radio Regulations.

Conclusion

DTT use of the UHF band enables the delivery of highly valued services across the EU that serve important social and cultural functions, as well as delivering commercial value. It will continue to play an important role across the EU and many of its members for years to come.

BNE believes that changing the regulatory arrangements for DTT spectrum use will have harmful consequences, including increasing risks of interference to services and undermining the regulatory stability that supports ongoing investment in this strategic platform.

It is also important to remember that in Europe, the UHF Decision guaranteed long term access to the 470-694 MHz band for terrestrial broadcasting, at least until 2030. Long-term certainty of spectrum access is essential to the continued success, innovation and development of the platform.

BNE believes maximising the public value of the UHF band means ensuring the continued delivery of broadcasting services across the EU. We therefore support a position of ‘No Change’ to the Radio Regulations under WRC-23 agenda item 1.5.

About Broadcast Networks Europe (BNE)

Broadcast Networks Europe (BNE) is a non-for-profit association under Belgium Law (AISBL) and represents Europe’s terrestrial network operators in Europe and internationally. Terrestrial broadcast network operators are responsible for managing, operating and maintaining the infrastructure that brings TV, radio and other wireless and over-the-air services to homes, cars, and other users.

As an organisation, BNE support an efficient and fair regulatory environment that give European citizens universal access to the TV and radio they watch and enjoy.

BNE’s 19 members are operating in 21 European countries: Austria, Belgium, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Monaco, Norway, Poland, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland and UK.

BNE is a member of DVB, ETSI, 3GPP and 5GMAG. BNE participates under MoU or similar arrangements in CEPT/ECC and ITU working groups and conferences. BNE is active in projects such as DPM DTT promotion and monitoring along EBU and DVB, or LOCAT Low Carbon TV Delivery, and in the coalition Wider Spectrum Group.

BNE is registered in EU Transparency under n°298887016981-26.

 UK	 Spain	 Czech Republic	 Greece	
 Finland	 Poland	 Serbia	 Italy	
 Italy	 Germany	 Croatia	 Austria	
 Ireland	 Romania	 Norway, Belgium	 France, Estonia, Monaco	
			 Switzerland	 Sweden
				 Slovakia

Explanatory notes

¹ Source: data base EBU-DVB-BNE in January 2022, based on DTT penetration (% of TV household where DTT is either sole means of reception or present alongside other platforms), and an average 2.3 person per household.

² Russia and Belarus not included

³ The WRC is run by the International Telecommunications Union (ITU) every three to four years. They agree the regulations governing how spectrum is to be used throughout the world.

⁴ The ITU-R questionnaire on mobile spectrum use and needs in Region 1 had replies from 20 administrations of which only 10 indicated a need for additional sub 1 GHz mobile spectrum. By contrast the ITU-R questionnaire on broadcast spectrum use and needs had 106 replies with 95 administrations indicating a continued need for all of the broadcast spectrum 470 – 694 MHz.

⁵ There are great differences in DTT reception, cable coverage and broadband coverage among different regions within each country. There are areas where DTT is the only mean of delivering television thus putting not only the European citizens in very unequal situation but also different countries and regions, if frequencies are to be allocated for mobile usage instead of DTT.

⁶ For more information, see [Digital Terrestrial Television is a European Success](#) in BNE website resource section

⁷ Source: data base EBU-DVB-BNE

⁸ See for instance [Deloitte's article](#) Dec 2019: "My antennae are tingling- Terrestrial TV surprising staying power"

⁹ See for instance Nielsen and Horowitz Research market data and predictions summarized in 2021 Rapid TV News [article](#), or description of nextGen TV [in NAB website](#)

¹⁰ Hybrid broadcast broadband TV (HbbTV) is a global initiative dedicated to providing open standards for the delivery of advanced interactive TV services through broadcast and broadband networks for connected TV sets and set-top boxes. [Hbbtv.org](#)

¹¹ ETSI TS 103 720 V1.1.1 (2020-12) « 5G Broadcast System for linear TV and radio services; LTE-based 5G terrestrial broadcast system"

¹² See also ITU R Report [BT 2302 01](#) which provides information on Spectrum requirements for terrestrial television broadcasting in the UHF frequency band in Region 1.

¹³ [Decision No 243/2012/EU](#) of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme

¹⁴ [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

¹⁵ the UHF Decision is not limited in time

¹⁶ Study from Gold Media/ Fraunhofer for Benetza 2022 [Perspektiven zur Nutzung des UHF Bands 470-694 MHz band nach 2030](#)

¹⁷ While Article 7 of the UHF Decision foresees a Report by the Commission to the Parliament and the Council the Decision does not include a Review

¹⁸ EAO [Yearbook 2021/2022](#) Key trends. See page 51. Out of the 13 European AV players in Top 50 world wide, the following 12 are on DTT: Vivendi, ARD, RTL Group, BBC, Altice, Pro7Sat1, ITV, France TV, Mediaset, Bouygues, RAI, ZDF

¹⁹ EAO *ibid*, page 49

²⁰ EBU [Whitepaper](#) Nov 2021, No Change at WRC-23 maximizes public value and innovation in the UHF Band.

²¹ For instance [SOS Save Our Spectrum](#), [Television Abierta](#)

²² The Wider Spectrum Group gathers 10 Europeanwide associations and NGO and 6 national ones, representing civil society as well as employee and employer organisations. See for instance the [declaration](#) at the Workshop on the UHF band study in March 2022 "The frequencies for a creative Europe in the UHF Band must be clearly defended for the long term in European spectrum policy and in the ITU process", or responses to RSPG public consultations.

²³ The LoCaT Project is a collaborative initiative from a few leading European players of the TV, Broadcast and Streaming industry who have commissioned Carnstone to assess the environmental carbon emission impacts of various TV delivery methods across the EU 27 and UK. Presentation of the study and the results are available at [thelocatproject.org](#)

²⁴ Refer to the [GSA report](#) Executive Summary Low band spectrum for LTE and 5G January 0222, which provides maps showing which countries have started to assign spectrum in the 700, 800 MHz and 900 MHz bands.

²⁵ See [ITU-D report](#) Measuring digital development- facts and figures 2021, which shows page 12 that in Rural Africa 79% of population is not covered by 4G networks and 18% not even by 2G; in Arab States, 49% of the rural population is not covered by 4G and approximately 8% not covered by 2G.

²⁶ Such as the band identified for PPDR in CEPT in the 700 MHz band, which have been assigned in some countries but whose use seem to remain limited

²⁷ For instance, the L-band or the 2.3 GHz band. While those band may have some limitations (such as downlink only for L-Band, or provide lesser coverage in the higher band), they may be suitable for many mobile applications.

²⁸ Aetha Consulting 2017 [Report on the defragmentation dividend](#)