MEDIA
BROADCAST

Media Broadcast response to the Draft RADIO SPECTRUM POLICY GROUP Opinion on ITU-R World Radiocommunication Conference 2023

About Media Broadcast

Media Broadcast GmbH is a company of freenet AG and, as Germany's largest nationwide service provider for the broadcasting and media industry, is its partner for digitalization. The company plans, sets up and operates multimedia transmission platforms for TV and radio based on modern transmitter, cable and satellite networks. Media Broadcast is the market leader in DAB+ and DVB-T2 and markets the terrestrial freenet TV platform. The company also connects broadcasters with its high-availability fibre-optic network as well as producing and broadcasting live events for TV stations and companies. Since the end of 2020, Media Broadcast has been operating its own 5G stand-alone campus network where it is joining forces with customers and partners to develop innovative 5G applications for the media sector and other industries. The company is based in Cologne, with several hundred service employees nationwide.

Comments on the Draft RSPG Opinion on ITU-R World Radiocommunication Conference 2023

Media Broadcast welcomes the opportunity to comment on the Draft RSPG Opinion on ITU-R World Radiocommunication Conference 2023. As a member of Broadcast Networks Europe (BNE), Media Broadcast fully endorses their response (Annex A) in the present consultation process and supports its core position:

> ***NO CHANGE on AI1.5 at WRC-23 and proposition that this agenda item should not be revisited until 2031 at the earliest***

In addition to the statements in BNE's response, Media Broadcast comments as follows regarding its own experience of many years in terrestrial broadcasting.

Under 4.3.3 – RSPG recommendation – "It is further noted that the EU Position on this agenda item should avoid ambiguity." Media Broadcast fully supports this objective, which serves the planning reliability and certainty of all market participants, and emphasises that clarity can only be achieved

through the NO CHANGE option. This is based on the following: By some market participants it is argued that a co-primary allocation to the mobile service creates flexibility for individual states in the use of the lower UHF band. Apart from the fact that this is only a sham flexibility (see the explanations on the so-called "Kassel banana" in Germany in Annex B), which in fact runs empty without European harmonisation, a co-primary allocation may be understood by some as opening different decision options in the future. However, we know that, based on the experience of clearing the broadcasting bands in the 800 MHz range as well as in the 700 MHz range, the broadcasting market participants assume that a co-primary allocation at WRC level is equivalent to a loss of the band for broadcasting use. Twice this experience has already been made. Consequently, a co-primary allocation would not lead to the desired avoidance of ambiguity but to the contrary.

Co-primary alone would damage DTT

Media Broadcast pleads for a clear and honest decision – NO CHANGE. This would be the logical consequence of a European spectrum policy that is committed to the goals of planning certainty for citizens, companies and markets as well as political continuity. It was only in 2017 that the European Union gave the telecommunications and broadcasting markets a clear and predictable guideline with the UHF decision[1]. In this context, Media Broadcast voluntarily relinquished frequencies in the 700 MHz band to clear the way for Mobile Services in this area. The switchover from DVB-T to DVB-T2 only took place in Germany in 2017. Against the background of the above, consumers would assume in the event of a co-primary allocation at WRC-23 that terrestrial broadcasting will be switched off. This would undermine trust in and significantly weaken DTT well before 2030 – only six years after introducing DVB-T2. This would not be in line with the planning reliability that the UHF decision intended to assure.

Co-primary would jeopardize the development and innovation of DTT

In addition, a co-primary allocation on WRC-23 would take away the ground from the plans for further and innovative development of terrestrial broadcasting which have begun in Germany and many other countries. Media Broadcast is engaged with other partners in the analysis and development as well as in tests of 5G Broadcast. This technology has the potential to give terrestrial broadcasting a modernisation boost, especially in the mobile use of mass-appealing content. This would create a basis for bringing quality content to citizens even better, by means of a resilient infrastructure and in a climate-friendly way. Doubts about the availability of the spectrum required for this in the 470 - 694 MHz range – and nothing else would mean a co-primary allocation on the WRC-23 – would significantly jeopardize these investments in the development of 5G Broadcast or successor

[1] Decision (EU) 2017/89926 of the European Parliament and of the Council of 17 May 2017 on the use of 470-790 MHz frequency band in the Union.

technologies and further commitment by innovators involved. To do so would be irresponsible in our view and would go against the spirit of the 2017 UHF decision.

Resilient DTT networks in times of crisis

At times of natural disasters like the floods in Germany in 2021, of national or international crisis, DTT has proven to be a valuable and robust technology to convey information to the public. The underlying infrastructure guarantees one-to-many communications that is far-reaching, and is resilient to network congestion, power or Internet outages or jamming. The above-mentioned innovative developments with 5G Broadcast will even improve these core features. Authorities and rescue forces will reach a much broader audience on mobile devices which are battery-based. Long-term access to dedicated spectrum ensures that DTT remains a reliable way to convey essential news and communication from local and national authorities.

Mobile telecommunications lack money, not spectrum

It is well known and undisputed that the lack of mobile phone coverage in rural areas is not due to a lack of frequencies, but due to the high costs of expansion. Therefore, some national administrations have put in place incentives and support for densification of mobile networks, e.g., in Germany (funding in order to support the development of up to 5,000 mobile communication sites along with other actions such as introducing simpler authorisation procedures) and in the United Kingdom (Government and operators have agreed a £1 billion deal to improve coverage). The result of such initiatives by governments reduces the economic burden on operators of infrastructure investment already underway to meet nations' coverage objectives. Therefore, costs of improved coverage and capacity can be effectively reduced without a need for additional spectrum, which itself would introduce additional costs from potential spectrum awards. Ralph Dommermuth, CEO of 1&1 as one of Germanys mobile network operators, does not accept either the argument that there is not enough spectrum for MNOs. "In all the big European countries there are four networks, there are also exactly the same frequencies as in Germany." In France, for example, there was no auction, but an industrial solution in which the spectrum was quartered and then allocated. That shows that it would work.[2]

Considering the above the best way to defend European interests is to establish NO CHANGE as a European Common Position regarding the AI 1.5 at WRC23.

Cologne, August 11, 2022

[2] https://www.digitalfernsehen.de/news/medien-news/maerkte/mobilfunk-aufteilung-der-frequenzen-statt-auktion-610284/

Brussels 2022-08-11

Response on the RADIO SPECTRUM POLICY GROUP DRAFT Opinion on the ITU-R World Radiocommunication Conference 2023 from Broadcast Networks Europe (BNE)

Summary

Regarding the RSPG's recommendation on WRC-23 Agenda Item 1.5, as BNE, we would like to express our views:

- The first option considered by RSPG is No Change at WRC-23 with a possible new agenda item at WRC-27 or WRC-31:
  - BNE welcomes a 'No Change' decision, as this option would avoid serious impacts on the European audiovisual industry and the significant social and cultural benefits it delivers for citizens. See our general comments below for a deeper substantiation of such impacts.
  - Also, BNE considers that discussing the Region 1 allocation of 470-694 MHz band again at WRC-27 would not provide enough certainty for industry to foster investment and innovation in DTT networks over the next five years. In contrast, revisiting this agenda item in 2031 or later, would be more compatible with investment plans and innovation agenda.
  - BNE notes that since 2016, 24 new countries in Region 1 have launched DTT networks, and in many other countries broadcasters and terrestrial network operators are investing in the development of new technologies such as 5G Broadcast, higher quality standards with UHD and the introduction of new services, such as Hybrid TV. Like all industries, broadcast needs a period of stability and certainty to allow development and innovation. Having to deal with regulatory changes every 5 to 7 years limits investment, development and innovation.
- The second option considered by the RSPG is a co-primary decision taken at WRC-23 but effective at a later stage:
  - BNE strongly opposes this proposal. In the attached position paper (Annex II), BNE argues that a change to co-primary would create an existential threat to the remaining spectrum available to deliver terrestrial broadcasting services and Programme Making and Special Events (PMSE). The recent Call to Europe on 30 June (see Annex I) shows that this concern is shared across a wide range of companies, associations, and NGOs in the broadcasting, cultural and creative industries sectors including workers and end users trade associations.
  - Whether the timing of that threat is differed, or not, does not change the nature of the threat. Indeed, if speaking of long-term certainty, a differed decision will have the same impact on the terrestrial broadcasting services, PMSE and the whole European Audiovisual industry; the investment plans and innovation agenda will suffer from an uncertain environment.
  - Moreover, once a co-primary decision would be applicable to all countries in Region 1, it would supersede the part of the Article 4 in the UHF Decision, stating that new services can be introduced solely on a secondary basis with respect to broadcasting.
  - BNE thinks this would in practice end the coordinated approach in the EU on the use of the 470-694 MHz band, which is a key tenet agreed in the UHF Decision.

Considering the above, the best way to secure European interests is to establish 'NO CHANGE' as a European Common Position regarding the AI 1.5 at WRC23 and onwards.

General comments

Broadcast Networks Europe (BNE)[1] welcomes the opportunity to share its views on the *Radio Spectrum Policy Group DRAFT Opinion on the ITU-R World Radiocommunication Conference 2023* and wants to express its full availability to collaborate and discuss with RSPG on all related issues.

BNE welcomes the fact that the draft RSPG opinion insists that the EU position on AI 1.5 should be compliant with the UHF Decision providing priority to broadcasting and PMSE usages until at least 2030. Our view is that the best and only option for Europe at WRC23 is a NO CHANGE position and to not revisit the topic until WRC-31 at earliest.

Europe has previously cleared broadcasting from the 800MHz and 700MHz bands to provide additional spectrum resourcing for mobile technologies. With this recent history, any position other than NO CHANGE at a European level will cause serious harm to the European audiovisual industry, including distribution and production, as legal uncertainty would affect investment decisions and put at risk its innovation agenda. Any other European Common Position would be consequently strongly harming two successful industries important for European culture, whilst having a negligible impact on improving another as the incremental value for mobile has not been substantiated. Changing the spectrum attribution will impact a free-to-air universal platform that provides critical services to citizens; in particular, the elderly and less privileged with less access to alternative TV options. Furthermore, a position other than NO CHANGE would not deliver any sustained relevant incremental benefit for citizens, as Europe has already set up its connectivity targets (Digital Agenda, Gigabit Society and now Digital Decade) assuming full connectivity and capacity with the already available spectrum[2].

The European audiovisual, cultural and creative industry have launched a "*Call to Europe*" to protect the spectrum (see annex I) that enables its cultural and creative industries to thrive; elevating its voice and sovereignty in today's complex world. The European audiovisual industry not only represents thousands of European jobs, but it also creates and distributes European quality content that educates, entertains and informs, while supporting community connections and a sense of belonging. A Mobile allocation on AI1.5 at WRC23 would weaken the European audiovisual industry and impact the significant benefits it currently delivers to citizens.

Spectrum management should care about the public value of the services supported as a general principle. Moreover, in the case for the 470-694MHz band, according to Article 7 of the UHF Decision[3], social, economic, cultural and international aspects must be taken into account. Also, the role of spectrum management combating climate change has to be taken into account. In this regard, according to the LOCAT Study conclusions[4], DTT is the most efficient platform to deliver live content. While EU is addressing its Green Agenda, it would be difficult to have a decision that goes against its own objectives.

Regarding the social, economic and cultural aspects, the benefits of a co-primary allocation have not been substantiated or demonstrated, nor have the implications of the problems caused by sharing been properly considered. As the 800MHz and 700MHz band clearances have shown, interference between

[1] BNE represents Europe's terrestrial network operators in Europe and internationally. Terrestrial broadcast operators are responsible for managing and maintaining infrastructure, TV network design, multiplexing, distribution, transmission and carriage deliver so that TV, radio and other over-the-air services can reach their audiences.
We are securing for 250 million European viewers universal access to the over-the-air services, radio and TV that they watch and enjoy for more than 3h30 on average per person per day.
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, Switzerland, UK and Sweden.

[2] Even in the case of more spectrum needed, there are other bands that can be used or reused such as the 900MHz after the 2G/3G switch off.

[3] Decision (EU) 2017/899 of 17 May 2017 on the use of the 470-790 MHz frequency band in the Union

[4] The LoCaT Project is a collaborative initiative from a few leading Europe an 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

systems is such that mobile cannot effectively share spectrum with broadcast and PMSE. Consequently, there is a real risk that a co-primary allocation would lead to the eviction of existing spectrum users. The impact for citizens and the European audiovisual industry of such an outcome has not been explored or assessed.

Regarding international aspects, there are no regional ITU organisations asking for a mobile allocation in this spectrum for Region 1. To provide the flexibility that a small number of countries seek, rather than consider a primary allocation for mobile, consideration should be given to a secondary allocation with Article 5 footnote. This appears to be a more appropriate way forward, giving those that want to use the spectrum for mobile an option whilst protecting and not undermining the existing use, broadcasting, PMSE, etc.

In summary, there is no evidence to demonstrate that European citizens will enjoy more value with a co-primary allocation. However, there are clear risks that a co-primary allocation would undermine the European audiovisual industries that provide critical services to citizens today.

BNE therefore supports a position of NO CHANGE on AI1.5 at WRC23 and proposes that this agenda item should not be revisited until 2031 at the earliest.

Find below additional and complementary reasons for NO CHANGE at AI 1.5 WRC-23:

1) **There is no demonstrated / substantiated demand for co-primary in Europe:**
    a. No clearly identified need for additional mobile spectrum sub 1 GHz.
    b. No clear or harmonised use case for additional mobile applications sub 1 GHz[5].
    c. The fact that mobile needs to make better use of the spectrum which has been already allocated to them[6], including the reuse of the 900MHz.
    d. Additional sub-1GHz spectrum will not solve the coverage / capacity issue[7]. More investment on infrastructures, more sharing and more intelligent / efficient use of the current allocated bands would.
    e. The 2030 European Digital Decade goals include a full 5G coverage using the already identified pioneer bands.
    f. European PPDR broadband service spectrum requirements were identified by the EC PPDR-TC[8]. According to the conclusions, spectrum in the 700 MHz and other bands has been identified to deploy dedicated networks. However, these spectrum chunks are yet to be used.
    Furthermore, there is no common harmonised position across European PPDR providers and no ITU/CEPT reports justifying the additional need for spectrum beyond that already identified.

[5] Even according to EC press release on the DESI report, "*4G frequencies or low band 5G spectrum, which does not yet allow for the full deployment of advanced applications*". Also, the performance of the lower frequency bands to provide service to smartphones would be an issue (devices working at 450MHz band have external antenna). Seems complicated to imagine smartphones with external antenna.

[6] According to the 5G Observatory, 56% of the pioneer bands have been assigned (64.2% for the 700MHz). No data on real usage and deployment.

[7] Indeed, according to 5G Observatory March 2022 report countries with the most impressive 5G coverage, like the Netherlands, sometimes only have access to one pioneer band. The latest DESI report makes a similar point. "*A significant share of this coverage was achieved using 4G spectrum (60% of 5G enabled base stations) rather than 5G pioneer bands, which allow for higher performance potential*".

[8] Final Report Summary - PPDR-TC (Public Protection and Disaster Relief – Transformation Center)

2) **Current regulatory framework from 470-694MHz, under GE06 and the UHF Decision, is the most intelligent and flexible use of the band. A co-primary allocation will reduce the current flexibility on the band:**

a. The 470-694MHz band is very efficiently shared today by several services such as DTT, PMSE, wind profile radars, radio astronomy, white space devices and others.
b. The 470-694MHz is the only remaining spectrum harmonized on a world-wide basis for broadcast TV as well as for PMSE or SAB/SAP.
c. Mobile does not share spectrum.
d. Co-primary will reduce the sharing of the band as many services, including Broadcast, cannot co-exist effectively with mobile in the same spectrum, as the first and second Digital Dividend have already demonstrated.
e. The current regulatory framework already provides "*additional flexibility*" on the use of the band. May be for a lack of interest, absence of use case, not incremental value envisaged or for whatever other reason, after 5 years of the UHF Decision, as BNE, we have not seen any relevant development from interested parties in developing such "*additional flexibility*"[9].
   According to our understanding, "*additional flexibility*" would mean new services alongside the current ones[10] benefiting all the ecosystem; "*additional flexibility*" shall not mean eviction of services, otherwise European regulators would be just pushing, again, the exclusion of broadcasting services causing a damage to the European citizens.
f. PMSE use is growing and there is no agreed alternative spectrum to meet its needs.

3) **Terrestrial broadcasting provides unique public value to European society. Co-primary would dramatically reduce the social value of the band for citizens:**

a. At present and for the foreseeable future there is no viable alternative to broadcasting for delivering audio-visual content to mass audiences with near universal coverage, free to air or low cost access, and guaranteed public service media prominence.
b. Digital Terrestrial Television is the #1 distribution channel for TV in Europe with most viewers and 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.
c. Terrestrial broadcasting provides technical resilience for national sovereignty and redundancy in reaching the population in times of crisis.
d. The incremental value of the allocation of the 470-694 MHz band or part of it (600MHz band to mobile) in Europe has not been substantiated. According to the European Digital Decade principles, recently agreed at political level, rural coverage and access to 5G networks need infrastructure investment, not more spectrum. There's no parallel with the US where this spectrum represents their second digital dividend.
e. A co-primary decision would have a negative impact on the audiovisual market, altering the competition dynamics and reducing the freedom of choice of citizens. Currently, out of the 50 top Audiovisual groups in the world, 13 are European and 12 of them are active on DTT networks.
f. Broadcasting is the 'greenest' form of audio-visual delivery. It consumes 8 times less energy than internet streaming (OTT mode) and 11 times less than managed IPTV as demonstrated by the LOCAT study.

[9] On the opposite, the European Audiovisual industry is working hard to provide more and better services without asking for more spectrum.
[10] 5GBC or further development of white spaces would be great examples of flexibility under the current regulatory framework.

4) **European audiovisual industry has an INNOVATION AGENDA that requires the use of the full 470-694MHz. Co-primary allocation would strongly damage or even stop the European audiovisual innovation agenda:**

a. Innovation to increase the quality of the terrestrial broadcasting services:

i. HD services are a *de facto* standard quality in almost all Member states.

ii. UHD services are being trialled across Europe. For instance, in Spain, half of the population can already receive free UHD services. Also in France, France Télévisions and TDF have demonstrated the ability of the DTT to provide UHD services to the citizens.

It is worth noting that terrestrial UHD services differ from most of the "4k internet" contents. Professional UHD emissions using DTT provide not only higher spatial resolution by using 4K, they also provide higher colour resolution using WCG, higher temporal resolution using HFR, higher brightness resolution using HDR and better and immersive sound.

To take into consideration that the collective work of the European Audiovisual industry in the standardisation of the UHD and other quality standards in Europe also allows the economies of scale for the TV manufacturers.

iii. The European Audiovisual industry is also working on the evolution of the UHD towards UHD2 and other quality standards on a 15-20 years horizon.

iv. Solutions such as AR/VR, 360º, WEB3 or NFT are promising applications that the industry is exploring.

b. Innovation to maximise the benefit of the collaboration between broadcast and broadband:

i. 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.

ii. Plenty of European Broadcasters have developed their own HbbTV applications. Find more info on the https://www.hbbtv.org/deployments/

c. Innovation to towards mobility and new devices:

i. Broadcasters have been investing in technology that would allow them to reach mobile devices such as smartphones or cars without asking for more spectrum. This innovation would benefit from the flexibility provided by the current spectrum framework and would increase even more the already highly efficient and intelligent use of the 470-694MHz.

ii. 5G Broadcasting (5G BC) is a broadcasting standard based on 3GPP technology that would allow broadcasters to complement their current networks by providing the ability to reach mobile devices.

5G BC is an innovation result of a joint effort from the European Audiovisual industry. Indeed, the industry is working, for instance, within the 3GPP standardisation process in order to identify spectrum on the sub700MHz to deploy 5G BC without the need of changing the current regulatory framework.

iii. 5G BC also opens the door to innovation on the production side with permanent connected cameras and/or cloud multicamera production solutions. All usages relying on the already allocated spectrum.

iv. The European audiovisual industry is investing on testing the technology and exploring the future applications of 5G BC. See https://www.5g-mag.com/trials for information on the trials.

d. Innovation to provide the state of the art of the professional services to citizens.
    i. European Broadcasters and specifically Public Media Service providers are investing in the TV sets of the future, wireless TV sets using the latest technologies, and in artificial intelligence applied to professional content to provide better local information, news alert systems, control against fake news and verification tools, automatic videoclip production, text drafting or voice synthetising among others.
e. PMSE innovation:
    i. Work on the wireless multi-channel audio system (WMAS) the next generation of audio Programme Making and Special Events (PMSE) equipment employing new wideband modulation techniques to support the transmission of multiple audio links in one single wideband radio channel.
    ii. WMAS employs a future-oriented wireless technology, which provides the technical foundation for supporting upcoming HD sound productions.
    iii. Digital narrow band systems continue to develop in audio quality and density.

In conclusion, if Europe were to set any position regarding AI1-5 WRC23 other than NO CHANGE, the European Audiovisual industry access to the spectrum would be placed at risk. Such a risk would be unnecessarily introduced without a clearly substantiated demand from any other sector for the spectrum nor any incremental demonstrated benefit for the citizens. Also, a mobile allocation would result in a reduction of the current flexible, efficient, intelligent and shared use of the spectrum by existing systems and would impact the freedom of choice of the citizens, freedom of speech and disturb the competitive dynamics of the European audiovisual market. On top of this, the innovation agenda of the European Audiovisual industry would be compromised affecting not only countries with a high DTT penetration but all Member states as the industry will be damaged.

Considering the above, as said at the beginning of this response, the best way to defend European interests is to establish 'NO CHANGE' as a European Common Position regarding the AI 1.5 at WRC23.

ANNEX I: Call to Europe



57 associations and companies active in the broadcasting and cultural industry from 18 European countries have joined forces in a "Call to Europe" to urge policymakers and regulators to preserve the Lower UHF Band (470-694 MHz) for broadcasting and wireless production equipment (PMSE: Programme Making and Special Events).

The future use of this band after 2030 will be decided at the World Radiocommunication Conference 2023 (WRC-23). At stake is the future of the most widely used TV infrastructure in Europe – 80 million or 43% of European Union households watch TV via Digital Terrestrial Television – and of productions for culture, media and events of all kinds. They use equipment such as wireless microphones and in-ear monitor systems for concerts, conferences and almost every other event. It is only possible for broadcasting and PMSE to continue to efficiently share spectrum and develop innovation further if the use of the entire Lower UHF Band is preserved. Without access to this spectrum, terrestrial television will not be possible anymore.

More information:

- https://sos-save-our-spectrum.org/?lang=en
- https://www.ebu.ch/news/2022/06/save-our-spectrum

Annex II: BNE position paper on WRC23

'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 27[i] (245 million in CEPT 46 countries[ii]) 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-23[iii], 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 countries [iv].

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.**

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 reach [v], reliability, and free-to-air programming offer[vi].
- 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 DTT[vii], 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 healthy[viii]; for instance, it has been growing in the USA and this is foreseen to continue[ix] as the complementarity of DTT and online video-on-demand services is more and more appreciated by citizens.

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 HbbTV[x]).
- 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 devices[xi] 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 future[xii]).
- In Europe, ensuring sufficient spectrum is available for the terrestrial provision of innovative audio-visual services is part of the RSPP[xiii] (article 7), while the UHF Decision[xiv] guaranteed long term access to the 470-694 MHz band for terrestrial broadcasting, at least until 2030[xv].

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 spectrum[xvi].
- 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.

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 decision[xvii]),
- 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.

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.

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 report[xviii], 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 subscriptions[xix].
- 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' [xx].
- More generally, the positions taken by many national alliances[xxi], and in the European coalition Wider Spectrum Group[xxii], 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.

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

- It has been established in the LoCaT study[xxiii] 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).

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 countries[xxiv].
- 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 networks[xxv]. 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 band[xxvi], the spectrum between 410 - 470 MHz or in other bands between 1 GHz and 2 GHz[xxvii].

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.

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 MHz[xxviii] 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.

Explanatory notes

[i] 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.
[ii] Russia and Belarus not included
[iii] 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.
[iv] 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.
[v] There are great differences in DTT reception, cable coverage and broadband coverage among different regions within each county. 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.
[vi] For more information, see Digital Terrestrial Television is a European Success in BNE website resource section
[vii] Source : data base EBU-DVB-BNE
[viii] See for instance Deloitte's article Dec 2019 : "My antennae are tingling- Terrestrial TV surprising staying power"
[ix] 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
[x] 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
[xi] ETSI TS 103 720 V1.1.1 (2020-12) « 5G Broadcast System for linear TV and radio services; LTE-based 5G terrestrial broadcast system"
[xii] 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.
[xiii] Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme
[xiv] 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
[xv] the UHF Decision is not limited in time
[xvi] Study from Gold Media/ Fraunhofer for Benetza 2022 Perspektiven zur Nutzung des UHF Bands 470-694 MHz band nach 2030
[xvii] 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
[xviii] 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
[xix] EAO ibid, page 49
[xx] EBU Whitepaper Nov 2021, No Change at WRC-23 maximizes public value and innovation in the UHF Band.
[xxi] For instance SOS Save Our Spectrum, Television Abierta
[xxii] The Wider Spectrum Group gathers 10 Europeanwide associations and NGO and 6 national ones, re presenting 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.
[xxiii] 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
[xxiv] 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.
[xxv] 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.
[xxvi] 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
[xxvii] 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.
[xxviii] Aetha Consulting 2017 Report on the defragmentation dividend

Die „Kasseler Banane“ bzw. warum eine europäische Lösung für das Rundfunk-UHF-Spektrum unerlässlich ist

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Funkwellen halten sich nicht an Landesgrenzen. Wenn ein Land die gleiche Frequenz zur gleichen Zeit wie ein benachbartes Land für einen anderen Funkdienst benutzen möchte, ist eine Absprache erforderlich. Andernfalls stören die Funkwellen des einen Landes, die sich über die Landesgrenze hinweg in das Nachbarland ausbreiten, diejenigen des benachbarten Funkdienstes. Die verursachten Übertragungsfehler können bis zu einem vollständigen Ausfall des Funkdienstes durch den benachbarten Störer führen. Die Störreichweite von Rundfunksendern beträgt aufgrund der vergleichsweise hohen Sendeleistung bei gleichzeitig stark exponierten Sendeantennen auf großen Sendetürmen bis zu mehreren hundert Kilometern.

Im Fall des Rundfunk-UHF-Spektrums[1] bestehen daher internationale Vereinbarungen[2], die in Europa und darüber hinaus regeln, welches Land welchen Rundfunkkanal in welchen Gebiet nutzen darf. Dadurch werden Störungen vermieden und ein gerechter Zugang aller Staaten zum Spektrum ist sichergestellt.

Aktuell wünschen auch andere Funkdienste, wie z.B. der Mobil- bzw. der Behördenfunk[3] das Rundfunk-UHF-Spektrum in Deutschland zu nutzen. Besonders weitreichende Störungen ergäben sich von weiterhin bestehenden ausländischen Rundfunksendern auf die Uplink-Empfänger an den Basisstationen des Mobil- bzw. Behördenfunks. Eine von den internationalen Vereinbarungen abweichende Nutzung erfordert daher eine Einigung mit allen betroffenen Nachbarstaaten.

Ohne eine solche Einigung könnte Deutschland als souveräner Staat Mobil- oder Behördenfunk in denjenigen, weit im Inland liegenden, Gebieten etablieren, in denen aufgrund der Entfernung kein Schutz vor ausländischen Rundfunksendern benötigt wird. Das resultierende Gebiet ist die sogenannte „Kasseler Banane“ (siehe Abbildung).



Abbildung: Gebiet der sogenannten „Kasseler Banane“

Man erkennt, dass nur in Absprache mit unseren europäischen Nachbarn eine attraktive, flächendeckende Lösung für neue Funkdienste erzielt werden kann. Das gilt insbesondere dann, wenn diese neuen Funkdienste (Mobilfunk, Behördenfunk) andere Schutzanforderungen haben als der Rundfunk. Eine hypothetische, rein nationale Umwidmung des Spektrums an Mobil- oder Behördenfunk wäre von diesen tatsächlich nur sehr eingeschränkt nutzbar. Das Spektrum würde brachliegen.

1 470-694 MHz

2 „Genf06-Abkommen“

3 BOS: Behörden und Organisationen mit Sicherheitsaufgaben