

BNE Consultation Response

Broadcast Networks Europe (BNE)¹ welcomes the opportunity to submit a consultation response and share its views on the (Draft) RSPG Opinion on the Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU.

BNE recognises the great work done by RSPG members on the Draft Opinion in putting together a forward-looking paper and agrees with a number of the conclusions set out in section 3.4 of the Draft Opinion but also has some comments and proposals for further clarification and improvement of the Opinion.

BNE remains open and available to maintain a dialogue with RSPG and any other relevant body to further discuss and explore the value and contribution of Digital Terrestrial Television and its key role for building the future of Europe.

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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 18 members are operating in 20 European countries: Austria, Belgium, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Norway, Poland, Romania, Serbia, Slovakia, Spain, Switzerland, UK and Sweden.

General comments

- **Social, political, cultural, economic, environmental and general interest aspects impact of proposed scenarios should be taken into account on the sub700MHz debate.**

RSPG Draft Opinion investigates some of the latest developments underlined in Article 7 of the UHF Decision such as, to some extent, technological developments or changes in consumer behaviour.

However, social, political, cultural, economic, environmental, and general interest aspects, which are also underlined in article 7 of the UHF Decision, are not properly considered. These are key aspects that need to be considered as part of any review of the future use of the UHF band. Indeed, fully acknowledging that the national situations may be different, the importance of DTT does also require a European viewpoint to address the previous aspects.

- **The impact on the European Broadcasting and Audio-visual industry needs to be assessed before taking any decision.**

Also, the impact of a potential “reduction” of the DTT window on the European Audio-visual industry needs to be considered both at national and European level. In particular, the implications this would have for the competitiveness of the European audio-visual market and the damage to the European culture, aspects of paramount importance for the European society that should be considered when looking at long term.

On the environmental and sustainability aspects, according to several studies², broadcasting delivery of audio-visual content has the lowest impact. *Moving* all DTT consumption on to other delivery means would have an impact on carbon emissions that should also be considered as part of this debate.

Taking into consideration the arguments above, we propose adding the following to the recommendation section which we believe will help address the needs of article 7:

Rec	Original text	Proposal
New		RSPG recognises that the debate on the strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU shall take into account social, political, cultural, economic, environmental and general interest aspects.

BNE’s view on the impact of DTT and broadcasting services on the social, political, cultural, economic, environmental and general interest aspects are summarised in Annex I.

Also, the contribution on the Digital Rights and Principles for the Digital Decade of the DTT and broadcasting services is summarised in Annex II.

- **The Draft Opinion should state more clearly that the Band 470-694 MHz will remain harmonised for broadcasting after 2030.**

The RSPG Draft Opinion is based on the recognition, which we welcome, that terrestrial broadcasting and PMSE will remain very important use cases in Europe until at least 2040. This is underlined by the fact that in two of the three scenarios DTT is the prime use case and in the third DTT is required.

However, because most recommendations focus on possible future usages other than broadcasting, we miss a clear statement that the current European harmonization for broadcasting, which is warranted by the RSPP (article 1 and 7) and in effect set by Article 4 of the UHF Decision, will continue as a policy. This is essential for the European single market, as terrestrial broadcasting is a mass market for equipment impacting 80 million homes in the EU, and terrestrial broadcasting plays a strong role in the European single market for AV production and distribution.

Spectrum harmonisation with a European perspective is essential as many countries are moving forward with their broadcast innovation roadmap based around the development and deployment of UHD, Hybrid TV and 5G Broadcast³.

Regarding UHD, it is worth mentioning at least two recent developments:

- In Spain, RTVE has been testing UHD content distribution over DTT for some time including, among other content, the Champions League Final, 2022 FIFA Men’s World Cup and the 2023 FIFA Women’s World

² See <https://thelocatproject.org/>

³ More information available at: <https://broadcast-networks.eu/wp-content/uploads/bne-innovation-roadmap-infographic-pdf/>

Cup. Moreover, RTVE has just announced that it will launch a regular UHD service on DTT from February 2024⁴.

- In France, the regulator is consulting on the preparation for the launch of UHD services on DTT⁵ for the Olympics in 2024.

Regarding 5G Broadcast, see comments below.

In summary, for a balanced approach, the RSPG Opinion should set the right framework for the provision of DTT services, including any technical evolution, to support investments from the European Broadcasting industry. In this regard, we propose to add the following:

Rec	Original text	Proposal
New recommendation		RSPG notes that the 470-694 MHz band is harmonized in Europe for terrestrial broadcasting and PMSE through the UHF Decision. This contributes to a single European market for content creation, production and delivery, for events and culture. RSPG recommends that this harmonization is maintained in the Union. This will provide Member States and stakeholders with a stable framework and European scale to develop broadcasting and PMSE applications according to their needs.

- **5G Broadcast: Comments on Section 3.3.2**

Section 3.3.2. provides a view on 5G Broadcasting. BNE welcomes that the Draft Opinion recognises the innovation and work being done by the European Audio-visual industry to keep improving and developing new and innovative services such as 5G Broadcast, while keeping its main service assets such as the quality of service, the free to air services, the lack of gate keepers and without asking for additional spectrum.

The current flexibility and long-term certainty provided by the UHF Decision allowed the industry to invest and develop a new standard, 5G Broadcast. The technology is here, now, and the industry is exploring use cases, coverage needs and implementation plans. Network implementation may differ from country to country and area to area and will depend on the service needs but according to trials and BNE experience, BNE anticipates that a mix of HPHT (*High Power – High Tower*) and LPLT (*Low Power – Low Tower*) will be the optimum network configuration.

Regarding potential interference related to interleaved use of 5G Broadcast:

- It is not appropriate to compare an uncoordinated 700/800MHz IMT deployment with a 5G Broadcast coordinated roll out where interference would be minimised.
- Indeed, across Europe, there are plenty of examples of DTT complementary downlink only emissions received on adjacent channels with no interference problems thanks to appropriate network planning and spectrum coordination.
- More studies would be required to assess potential interference, but the impact is not expected to be critical if careful planning and mitigation techniques are undertaken.

⁴ See: <https://www.rtve.es/rtve/20230721/acuerdo-unanime-consejo-administracion-rtve-nuevo-canal-uhd-4k/2452564.shtml>

⁵ See: <https://www.arcom.fr/vos-services-par-media/consultations-publiques/consultation-publique-pour-la-preparation-du-lancement-de-services-de-la-tnt-en-ultra-haute-definition>

Taking into account the previous, we propose some amendments in section 3.3.2:

Section	Original text	Proposal
3.3.2	<p>DTT spectrum planning based on High Tower/High Power allows cost-efficient provision for fixed roof-top reception deployments, in which high quality services can be provided with low level of signal in the edge of the coverage areas. This configuration, however, does not enable to have sufficient received field strength, necessary for a good mobile reception (e.g. in 5G Broadcast from smartphones, tablets etc.), which has to overcome the intrinsic limitations of portable devices and higher variability of the signal strength. In these scenarios denser network will be needed, similarly to WBB ECS networks (this means using a deployment based on low/medium power/towers).</p> <p>An interleaved spectrum usage of DTT roof-top reception and 5G Broadcast would generate interference from 5G Broadcast to DTT fixed reception, as shown in the 700 MHz and 800 MHz bands, if 5G Broadcast is deployed over a dense network (low tower). To mitigate this interference, filtering would need to be installed after the DTT receiving antenna. In opposite to the 700/800 MHz cases, the use of interleaved spectrum will require filters adapted to the local circumstances (i.e. local DTT channels), which would imply cost and technical challenges.</p>	<p>DTT spectrum planning based on High Tower/High Power allows cost-efficient provision for fixed roof-top reception deployments, in which high quality services can be provided with low level of signal in the edge of the coverage areas. This configuration, however, does not always enable to have sufficient received field strength, necessary for a good mobile reception (e.g. in 5G Broadcast from smartphones, tablets etc.), which has to overcome the intrinsic limitations of portable devices and higher variability of the signal strength. In these scenarios denser complementary network will may be needed depending on the coverage needs, similarly to WBB ECS networks (this means probably using an optimum deployment based on a mixture of high power/high tower and low/medium power/towers).</p> <p>An interleaved spectrum usage of DTT roof-top reception and 5G Broadcast would could generate interference from 5G Broadcast to DTT fixed reception, as shown in the 700 MHz and 800 MHz bands by the mobile usage, if 5G Broadcast is deployed in an uncoordinated way with respect to DTT over a dense network (low tower). More studies would be needed to assess such potential interferences and, if any, mitigation techniques should be explored such as optimum radio planning, cross polarisation or use of filters among others. To mitigate this interference, filtering would need to be installed after the DTT receiving antenna. In opposite to the 700/800 MHz cases, the use of interleaved spectrum will require filters adapted to the local circumstances (i.e. local DTT channels), which would imply cost and technical challenges</p>

Comments on Chapter 5, Recommendations

- Section 5.2 Recommendations on possible technically feasible scenarios for post 2030, recommendation 5:

Rec	Original text	Proposal
5	RSPG recognises also the needs, at national level, for several mobile usages other than Wireless Broadband Electronic Communication Services (WBB ECS) and PMSE (i.e. PPDR, defence). Therefore, RSPG recommends that in case of decreasing needs for broadcasting at national level, spectrum should also be made available nationally for these use cases, taking into account the possible needs of cross border coordination.	

BNE has no specific proposal on this recommendation but would like to provide some remarks:

- The recommendation would not be needed as the Article 4 of the UHF Decision already envisages such case.
- It would be interesting to provide more detail on the “mobile usages other than Wireless Broadband Electronic Communication Services (WBB ECS) and PMSE (i.e. PPDR, defence)” as, on the opposite, what the RSPG Draft Opinion states in its section 3.4 Conclusions is that “no established market demand or business case identified so far for most of the Member States”.

If no additional services are identified, the need of such a recommendation should be reassessed and considered for deletion as it is already covered in the current regulatory framework.

- Section 5.2 Recommendations on possible technically feasible scenarios for post 2030, recommendation 8:

Rec	Original text	Proposal
8	RSPG recognises that the evolution of UHF band broadcasting reception during the current decade, including factors such as the number of programs, the content format (HD/UHD) and technological advancements (e.g. DVB-T2/HEVC, 5G Broadcast) plays a role in shaping any timeline post 2030. Further, any	RSPG recognises that the evolution of UHF band broadcasting reception during the current decade, including factors such as the number of programs, the content format (HD/UHD) and technological advancements (e.g. DVB-T2/HEVC, 5G Broadcast) plays a

	<p>decision on these factors is a national matter determined by market demand and audio-visual policy. Nevertheless, RSPG recommends that Member States wishing to continue to use sub-700 MHz band primarily for broadcasting, strive to implement most efficient technologies (such as T2/HEVC),.</p>	<p>role in shaping any timeline post 2030. Further, any decision on these factors is a national matter determined by market demand, consumer equipment, sustainability and audio-visual and public policy. Nevertheless, RSPG recommends that Member States wishing to continue to use sub-700 MHz band primarily for broadcasting, strive to implement most efficient technologies (such as T2/HEVC).</p>
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Rational:

Broadcasting reception plays a key role in audio-visual and public policy in most of the European Member states. Indeed, broadcasting services have dramatically evolved during the last 15 years whilst keeping their key public policy assets: being the main source of free to air audio-visual contents, including public service, guarantying accessibility to all citizenship and providing near universal coverage. This public policy contribution needs to be considered as Member states shall keep the sovereignty to decide keeping broadcasting services on air.

At this point, BNE considers it of a paramount importance to highlight that any innovation and improvement of the broadcasting services needs to carefully take into consideration the impact on citizens, moreover on those with fewer resources. The evolution of the DTT services has always been inclusive and has not left anyone behind.

DVB-T2/HEVC provides a means for spectrally efficient delivery of services and its universal adoption would provide greater choice. However, a migration to this would require citizen buy-in and purchase of compatible TV sets. Citizens should perceive value in the additional or better services and freely decide to be part of this migration. Indeed, the TV sets in the European households are not yet fully ready for such a migration and the renewal cycle of these requires time. Also, from the sustainability point of view, the TV sets renewal need to be properly assessed in order to avoid a massive amount of electronic waste. This approach needs to be considered when understanding innovation cycles for the broadcasting industry and, hence, spectrum decisions.

So, in order to accommodate the reality of the broadcasting ecosystem dynamics, BNE proposes some small modifications to the recommendation.

- **Section 5.2 Recommendations on possible technically feasible scenarios for post 2030, recommendation 9**

Rec	Original text	Proposal
9	RSPG believes that any outcome of WRC-23 concerning the sub-700 MHz frequency band should not be considered as prejudicing or constraining any later EU choice or decision on the European legal framework in this band.	DELETE

BNE does firmly believe that spectrum harmonisation and long-term certainty are two key assets to be preserved in the long-term debate of the sub700MHz in Europe and in spectrum management in general. Indeed, ITU WRC decisions are sometimes hard to achieve, but they provide clear signals to the industry that paves the way for innovation and investments.

On the other hand, Europe and its Member states are always sovereign to take any decision, in the understanding that it respects the international legal and regulatory framework.

In this regard, BNE does not understand how Recommendation 9 from the Draft Opinion could be useful. BNE proposes either to delete recommendation 9 or to reword it in order not to undermine and/or constrain the European position for the ITU WRC23 Agenda Item 1.5 negotiation . Otherwise, it could be understood that, for unexplained reasons in the Draft Opinion, the ITU framework has no influence at all on sub700MHz EU decisions.

Annex I: The value and contribution of Digital Terrestrial Television, a key asset for building the future of Europe

Europe embodies a collection of values such as democracy, universality, sustainability, diversity, inclusion and accountability, which guide how political and business decisions and choices are made and implemented. Also, the idea of equality of each and all European citizens, independently of their age, educational level, socio-economic conditions or place of residence should drive regulatory decisions.

For this reason, BNE has developed a vision for Europe beyond 2030, which articulates how its members aim to make a difference: providing universality and accessibility, enabling relevant public service media, highlighting Europe's role model for democracy, fostering European diversity and richness, contributing to a fair and dynamic European single market, boosting competitiveness and fair competition thanks to a long-term regulatory framework, igniting innovation for all Europe and, overall, supporting a stronger Europe.



The Digital Terrestrial Television Value Model illustrates the multiplicity and diversity of contributions delivered by digital terrestrial broadcasting, in terms of sovereignty and resilience, innovation, democracy, creativity and culture, social commitment and environmental sustainability⁶.

Without a long-term certainty, even beyond 2030, all this European value would be putted at risk.

- **Sovereignty and resilience**

As a critical infrastructure, organized in nationwide networks and operated under national licenses, DTT is an asset that strengthens European sovereignty. At the same time, DTT infrastructure provides resilience for the broadcasters and the other multiple services using it. This turns DTT into the best platform to keep Europe safe, securing a functioning society in times of crises in the easiest way.

In any emergency, terrestrial broadcasting provides a key resilient network to reach out to citizens and support the work of emergency and rescue services, which often operate their own internal communication systems on the DTT infrastructure.

Not only DTT sites are highly protected from any threat but also highly resilient to cyber-attacks, guaranteeing service continuity at a level that cannot be matched by online distribution.

Overall, DTT delivers TV services to everybody with no bottlenecks and no buffer even in peak time, securing a high-quality access to all viewers regardless of their location.

- **Innovation**

Based on its vision for Europe beyond 2030, broadcast network operators have recently unveiled their own innovation roadmap⁷.

This includes the launch and development of several new technologies that would not only create the linear TV experience of the future but also blend linear and on demand services for a seamless and easier viewing experience.

Within this roadmap, 5G Broadcast combines broadcast and unicast technologies, not only promoting a better user experience on mobile devices but also a more efficient use of the spectrum.

The DTT network will offer a seamless access to linear and on demand contents, making viewers' lives easier via technologies such as HbbTV and DVB-I.

⁶ More information can be found at: <https://broadcast-networks.eu/building-the-future-of-europe-the-value-and-contribution-of-digital-terrestrial-television/>

⁷ More information can be found at: <https://broadcast-networks.eu/european-cultural-band-an-innovation-roadmap-for-the-lower-uhf-band/>

This commitment to innovation is complemented by the increasing spectral efficiency enabled by two factors: the transition from DVB-T to DVB-T2 and the use of more efficient video compression codecs such as HEVC and VVC. As a result, DTT will enable the delivery of higher quality services and pave the way for the introduction of 5G Broadcast.

This technical evolution of the DTT network will not be at the expense of other services, rather the opposite: this innovation roadmap plans to maintain the track record of terrestrial broadcast services in spectrum sharing with other key services such as PMSE for media and cultural production, radio astronomy and the military.

- **Democracy**

While democracy is often taken for granted in Europe, it needs to be nurtured, strengthened and promoted. Terrestrial broadcasting services already do that by enabling a direct connection, without gatekeepers, between broadcasters and citizens.

Among all media, broadcasters are a primary source of trusted information, thus greatly contributing to the required public debate to keep democracy healthy.

The license system built upon DTT infrastructure guarantees quality news, pluralism and freedom of speech. It is also an effective tool in the urgent fight against misinformation that threatens democracy.

Consequently, a weakened DTT or its switch-off would diminish the ability of national decision-makers and regulators to use public policies to shape the development of media and communication services. As a result, a broad array of public goals aiming to create a more fair and diverse society would not be achieved.

Overall, DTT broadcasters are key contributors to the health and dynamism of the national public sphere. Thanks to their nationwide footprint and the content they carry, these broadcasters enable each and all citizens to form their own opinions.

- **Creativity and culture**

Terrestrial broadcasting plays a key role in enabling a sovereign, independent and thriving European audiovisual and cultural sector thanks to its close relationship with producers and its very significant investment.

Five out of 6 € invested in European original content come from broadcasters, for which DTT is their distribution backbone.

Overall, European broadcasters annually spend nearly 38 billion € in content. This investment results in the creation of highly-qualified jobs that, by their nature, are difficult to relocate to other countries.

Not only are broadcasters the prime investors in European original content but also the main agents showcasing this content. As such, they spread culture and stories with European values at their core.

For broadcasters, DTT is more than just a robust and reliable distribution network delivering an extensive footprint, high quality of service and high reach: it is also a strategic asset. Thanks to DTT, European broadcasters secure their direct access to their viewers via a free and easy to-use platform. Furthermore, DTT ensures their prominence and findability in an increasingly crowded offer.

- **Social commitment**

DTT's high population and territorial coverage allows broadcasters to play a key social role in European societies, preventing leaving anybody behind.

DTT brings a free-to-air and easy-to-use linear TV experience to all citizens, regardless of their age, their location or their economic, social and educational conditions.

Given its coverage rates close to 100% of the population, DTT provides an offer with a guaranteed quality of service to nearly all citizens across Europe. It secures universal access to quality information, entertainment and knowledge together with connection and companionship.

Therefore, DTT acts as a tool for inclusiveness that can be leveraged to build a more cohesive society.

The platform also champions accessibility: users with disabilities, and their families, benefit from adapted communication services thanks to the sustained efforts and investments in accessibility made by DTT broadcasters.

- **Sustainability**

Terrestrial broadcasting is an asset for the environmental sustainability journey in which modern societies are embarked. Broadcast network operators already illustrated this through their landmark Report on Low Carbon Television⁸, commissioned to Carnstone.

Overall, DTT is the greenest platform for TV distribution, thanks to both its multicast nature and the passive aerial connection to access the network at households.

Additionally, the platform enables an enormous brain print by DTT broadcasters: their ability to raise awareness, change attitudes and prompt action regarding climate and the environment among audiences should be neither obviated nor underestimated.

Furthermore, dismantling an efficient and effective infrastructure of these dimensions would generate enormous amounts of unnecessary waste with a high environmental impact and a huge economic cost.

Similarly, maintaining DTT is a policy decision against both planned obsolescence of mobile devices and generation of electronic waste. The long replacement cycle of TV sets is a greener option than the shorter one of mobile devices.

⁸ More information can be found at: <https://broadcast-networks.eu/dtt-a-green-sustainable-platform/>

Annex II: DTT's contribution to the Digital Rights and Principles for the Digital Decade

BNE firmly believes that DTT and the values it delivers fit perfectly to a number of the digital rights and principles as stated in the [European Declaration on Digital Rights and Principles for the Digital Decade](#).

DTT strongly supports **solidarity and inclusion**. DTT's high population and territorial coverage allows broadcasters to play a key social role in European societies, preventing leaving anybody behind. DTT brings a free-to-air and easy-to-use linear TV experience to all citizens, regardless of their age, their location or their economic, social and educational conditions. Given its coverage rates close to 100% of the population, DTT provides an offer with a guaranteed quality of service to nearly all citizens across Europe. It secures universal access to quality information, entertainment and knowledge together with connection and companionship. Therefore, DTT acts as a tool for inclusiveness that can be leveraged to build a more cohesive society. The platform also champions accessibility: users with disabilities, and their families, benefit from adapted communication services thanks to the sustained efforts and investments in accessibility made by DTT broadcasters.

DTT ensures **freedom of choice**. For broadcasters, DTT is more than just a robust and reliable distribution network delivering an extensive footprint, high quality of service and high reach: it is also a strategic asset. Thanks to this platform, European broadcasters secure their direct access to their viewers via a free and easy-to-use platform. Furthermore, DTT ensures their prominence and findability in an increasingly crowded offer.

DTT fosters **participation in the digital public space**. While democracy is often taken for granted in Europe, it needs to be. Terrestrial broadcasting services nurture, strengthen and promote democracy by enabling a direct connection, without gatekeepers, between broadcasters and citizens. Among all media, broadcasters are a primary source of trusted information, thus greatly contributing to the required public debate to keep democracy healthy. The license system built upon DTT infrastructure guarantees quality news, pluralism and freedom of speech. It is also an effective tool in the urgent fight against misinformation that threatens democracy. Overall, DTT broadcasters are key contributors to the health and dynamism of the national public sphere. Thanks to their nationwide footprint and the content they carry, these broadcasters enable each and all citizens to form their own opinions.

DTT increases safety, **security** and empowerment of individuals. The use of a highly protected network such as DTT effectively contributes to build cyber resilient critical infrastructures.

DTT is a strong contributor to the **sustainability of the digital future**. Terrestrial broadcasting is an asset for the environmental sustainability journey in which modern societies are embarked. Overall, DTT is the greenest platform for TV distribution, thanks to both its multicast nature and the passive aerial connection to access the network at households. Additionally, the platform enables an enormous brainprint by DTT broadcasters: their ability to raise awareness, change attitudes and prompt action regarding climate and the environment among audiences should be neither obviated nor underestimated. Maintaining DTT is a policy decision against both planned obsolescence of mobile devices and generation of electronic waste. The long replacement cycle of TV sets is a greener option than the shorter one of mobile devices.