

Media Broadcast response to the Draft RADIO SPECTRUM POLICY GROUP Opinion on the Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU

August 25, 2023

About Media Broadcast

Media Broadcast is a freenet AG company and Germany's largest nationwide service provider for the broadcasting and media industry. 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 terrestrial radio and television broadcasting (DAB+ and DVB-T2 HD) and markets the freenet TV platform. Among its other activities, it holds shares in Antenne Deutschland, the DAB+ platform operator. The company also connects broadcasters with its high-availability fiber-optic network and broadcasts live events for TV stations and companies. Media Broadcast operates 5G campus networks for innovative applications and offers them to industry customers, private companies and public sector customers on a permanent as well as temporary basis. In addition, the company provides high quality telecommunication services for nationwide customers.

Comments on the Draft RSPG Opinion

Media Broadcast welcomes and wants to thank the RSPG for the opportunity to reply on the draft RSPG Opinion "Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU". As a member of Broadcast Networks Europe (BNE), Media Broadcast fully endorses their response in the present consultation process.

General

The Radio Spectrum Decision of 2002¹ recognizes that “Radio spectrum policy in the Community should contribute to freedom of expression, including freedom of opinion and freedom to receive and disseminate information and ideas, irrespective of borders, as well as freedom and plurality of the media.” (Recital 3). These principles and aims are continuously reiterated for example in the European Electronic Communication Code. The specific role audio-visual media plays for society is also the basis of the Audiovisual Media Services Directive. In addition, the European Commission in September 2022 proposed a European Media Freedom Act to protect and promote Media freedom and pluralism in the EU, recognizing the essential importance of the media for a functioning democracy and the rule of law. Thus, any development in the field of spectrum policy must consider the role of media for society, including its production and its means of distribution.

There are millions of households which receive TV via Digital Terrestrial Television (DTT), primarily or on secondary devices. Media Broadcast provides nationwide and regional DTT via resilient networks that even withstand crisis and disaster conditions. In the future, there is the possibility to use 5G Broadcast, which addresses mobile devices like smartphones and tablets, as well as in-car installations. We heavily invested into resilient DTT networks, and we are very active in the development of 5G Broadcast.

Furthermore, we would like to underline that the UHF band 470-694 MHz is the core band for PMSE (Programme Making and Special Events). Media Broadcast uses PMSE systems to serve media content production, e.g., sports, elections, or music events. Any further reduction of the available UHF spectrum would harm the production of large and mid-size media events.

We welcome the balanced wording of the draft RSPG opinion on the future use of the frequency band 470-694 MHz beyond 2030 considering the importance of DTT and PMSE. The three scenarios described in the Draft Opinion are the ones which are realistic and meaningful.

In summary, we strongly urge to keep the whole of the remaining UHF band 470-694 MHz for broadcasting and culture beyond 2030.

¹ Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision)

Comments:

Chapter 3.1 describes well the so called “envelope concept” established in the GE06 agreement and states correctly, that Article 4 of the UHF-Decision already gives a lot of flexibility. However, it is important to note that so far, no mobile network operator applied for such a kind of flexibility.

In Chapter 3.3.2, the opinion states correctly that “... *5G Broadcast is an application of the Broadcast Service*”. 5G Broadcast can be deployed as a stand-alone network, using resilient broadcast network infrastructure, including high-power-high-tower (HPHT) stations. The broadcast channel bandwidths 6, 7 and 8 MHz have been standardized by 3GPP in Rel-17, and finalization of a work item aiming at making available the band 470 – 694/698 MHz for 5G Broadcast is foreseen for September 2023.

However, the following general statement in the Draft Opinion is incorrect:

“...an interleaved spectrum usage of DTT roof-top reception and 5G Broadcast would generate interference from 5G Broadcast to DTT fixed reception...”

Across Europe, there are plenty of examples of DTT emissions received on adjacent channels with no interference problems thanks to techniques such as critical filtering on the emission side.

DVB-T2 and 5G Broadcast address different use cases. DVB-T2 is used for stationary, portable and mobile reception by dedicated broadcast receivers. 5G Broadcast targets 3GPP devices, primarily smartphones, tablets, and in-car infotainment systems for portable and mobile reception. The very low antenna gain of these mobile devices requires a higher field at the receiving place. Research shows that a mix of High Power/High Tower infrastructure with other infrastructure will be an optimum network configuration. Another option is mixing 5G Broadcast with unicast in a hybrid approach.

Two trials in Germany have shown that there are no interferences into DVB-T2 reception. In both cases, no issues whatsoever with other DVB-T2 deployments have been reported:

- The Media2Go trial in the Stuttgart-Heidelberg area was based on two HPHT stations and a few smaller sites, all operating in TV Channel 40 (single frequency network (SFN)).
- The 5G Broadcast trial of NDR is using TV Channel 34, while a DVB-T2 signal in TV Channel 33 is simultaneously transmitted.

Note: Both trials are missing in Annex III of the Draft Opinion, which might be one of the reasons for the wrong statement. Therefore, we propose additional text for Annex III on both trials, which we have discussed and agreed with other German stakeholders (see at the end of this document).

The results of both trials and our practical experience of more than 20 years of network operation for digital broadcasting services like DAB, DVB-T/T2 and DVB-H, makes us confident, that interferences will not occur with careful planning and/or if appropriate mitigation techniques are applied. This underlines the importance that such networks are operated by broadcast network operators.

In **Chapter 3.3.3** it is stated that a use of the 600 MHz band for mobile “...means a reduction of the spectrum available to DTT and PMSE by 80 MHz which equals to 10 TV channels”. Though this is technically correct, it could cause the impression that only 10 TV programmes would be lost. In this context, we would like to provide two comments:

- The GE06 updated Digital Plan provides equal access to spectrum in general for each country, but not consecutive 8 MHz channels or an equal distribution across sub-bands. Therefore, the distribution of channels differs across areas as well as multiplexes. The loss of 600 MHz band therefore would lead to regional asymmetries, resulting in a need for intensive negotiations with neighbouring countries and potential loss of more than 10 channels, especially in bordering areas.
- Each multiplex in Germany carries up to 7 TV programmes. Considering that several multiplexes would be affected, it can be assumed, that in some areas about 20 TV programmes would be lost and introduction of 5G Broadcast would be impossible. Additionally, the capacity for PMSE will be reduced by around 50%.

Furthermore, we would like to underline that if the use of the 600 MHz band for mobile networks would be foreseen this would lead to significant interferences from mobile base stations to DTT reception due to overloading. As of today, millions of DTT receivers are in use in private households which receive DTT signals at least in the entire band 470 – 694 MHz. In case of alternative UHF usages by mobile networks, thousands of 4G/5G base stations in close vicinity of populated areas would cause severe DTT interferences in a certain area around these base stations, the so called “hole punching” effect. In Germany, portable and mobile reception are the main coverage goals, networks were implemented accordingly. However, portable and mobile DTT receivers cannot be retrofitted with additional filters. This fact would essentially prevent ANY further DTT operation as it would require the replacement of existing DTT receivers.

In **Chapter 4.3.1**, the Draft Opinion states under “Scenario 3: Broadcasting limited, Mobile (Full FDD band plan)” that a limited broadcasting usage would give the opportunity to introduce mobile broadband by implementation of the 600 MHz band plan and

“...this would also mean that the national solutions for the PMSE usage in this band may be in place, though less spectrum will be available.”

Even a decline in broadcasting usage still requires, at least, the current amount of pan-European available UHF spectrum for PMSE. The need for PMSE applications is constantly rising due to the use of more wireless devices and increased quality requirements. De-harmonised national PMSE spectrum solutions would be prohibitive for cross-border cultural media productions. On the other hand, culture and media production is accountable for one of the largest industrial sectors in Europe. Therefore, we strongly recommend keeping the existing Europe-wide UHF spectrum solution.

Furthermore, the Draft Opinion states that

“...access to linear audio-video content could in most cases take place via means other than DTT.”

In Germany, DTT is designed for mobile and portable reception. Neither fixed broadband, satellite, Fixed Wireless Access, Multichannel Multipoint Distribution Service nor cable TV are suitable for these use cases. A viable solution could be 5G Broadcast bearing in mind that these networks would be operated by broadcast network operators still requiring access to the UHF spectrum as of today. At this point we would like to express our astonishment about contradictory statements by the mobile industry, that, on the one hand, broadcast audiovisual content could be easily transported via mobile networks and, on the other hand, requesting more and more spectrum since mobile networks are congested.

With respect to “changing patterns of media viewing/consumption”, we would like to draw the attention to significantly rising mobile usage of DVB-T2 in Germany. The "Video Trends 2022 - Results of the Digitisation Report Video" by the market research institute Kantar and commissioned by the German media authorities shows that the number of households using DVB-T2 at home on the TV set has remained stable over the last few years, while portable and mobile use has risen. According to that research there is more DVB-T2 usage on portable / mobile devices than on the big screen. ²

In Chapter 5.1 the RSPG encourages in point 2 Member States to

“...explore circumstances, in partnership with neighbouring countries, of flexibility near their shared border...”

even before 2030.

² https://www.media-broadcast.com/wp-content/uploads/2022/11/20221107_PM_Digibericht-Video-2022-Kantar.pdf

The current European legislation protects DTT and PMSE usages unrestrictedly across Europe until 2030. Any premature weakening of existing law is unduly threatening DTT and media production. The shared borders mentioned in this statement are those regions which already suffer spectrum scarcity for DTT and PMSE. In several cities in Western Germany along the common borders with Belgium and The Netherlands ("triangle"), the spectrum situation is already exceedingly difficult for broadcasting and media production.

The RSPG recognizes in **Chapter 5.2** the need for several other mobile usages other than Wireless Broadband Electronic Communication Services in **Recommendation 5** and recommends that in case of decreasing needs for broadcasting at national level, spectrum should also be made available nationally for these use cases. We are of the opinion this Recommendation would not be needed as the Article 4 of the UHF Decision already envisages such case. It seems that this is even in contrast with the statement in **Chapter 3.4** that "...no established market demand or business case identified so far for most of the Member States".

Furthermore, we would like to recall that current and future PMSE use does not allow for a further spectrum reduction. At the same time the demand for other mobile usages could be met in other frequency bands.

In **Recommendation 8**, the 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)".

Media Broadcast fully supports this view. Together with all other broadcast network operators in Germany, we already implemented DVB-T2/HEVC several years ago.

In contrast, we miss similar requirements for the Mobile sector, asking for additional spectrum in the sub-700 MHz band and still operating less efficient 2G and 3G networks. The temporarily prolonged use of 2G/3G networks to cater for important legacy services like eCall is necessary. On the other hand, some Member States prepare phasing out of all 2G/3G networks. We advocate for a modernization of mobile networks replacing 2G/3G by 4G/5G. Critical legacy services could be maintained e.g., by operating a single legacy 2G network with reduced capacity.

Finally, we would like to provide additional information on Annex III "5G Broadcast Trials" on the test deployment of "5G Media2Go" at ARD/SWR in Germany:

5. Germany

Between October 2020 and December 2022, a cross-industry consortium consisting of public service media, car manufacturers, telecom operators, network infrastructure providers and universities

carried out a comprehensive 5G Broadcast project, called 5G Media2Go, in the wider Stuttgart area with the following objectives:

- Verification of 5G Broadcast as a system being capable of delivering linear media services to in-car infotainment systems.
- Deployment of a 5G broadcast network in the wider Stuttgart area consisting of two high-power-high-tower transmitters (HPHT) and a set of low-power-low-tower stations (LPLT).
- Integration of different media services in the infotainment system of a car, i.e., linear TV, IP-based streaming content (ARD Mediathek) and georeferenced recommendations.
- Execution of measurement campaigns to assess quality of service and coverage of the 5G Broadcast transmissions.

To this end, a 5G Broadcast network was deployed consisting of two HPHT stations operating at 73 and 20 kW, respectively, and up to four smaller stations with ERPs in the range of 200 W- 1 kW. The coverage was provided to a large extent by the two HPHT stations. The TV channel 40 was used. As this frequency was fully coordinated upfront, no interference issues were reported.

Prototype smartphones could be used to receive and display 5G Broadcast signals showing satisfying performance within the expected range. Moreover, emergency alert notifications over 5G Broadcast were implemented on the occasion of the so-called German “Warntag” (emergency alert day) where all emergency systems in Germany were tested.

In summary, the following major conclusions can be drawn from the investigations carried out in 5G Media2Go:

- 5G Broadcast is capable to deliver linear TV and radio services to smartphones and infotainment systems in vehicles.
- 5G Broadcast supports delivering linear services at high speeds of up to 180 km/h.
- 5G Broadcast can be configured to distribute different data stream formats, e.g., MPEG Transport Stream and MPEG Dash.
- 5G Broadcast supports network operation in single frequency mode including both HPHT and LPLT transmitters.
- The integration of 5G Broadcast transmissions alongside with unicast communication on infotainment systems of vehicles to grant access to nonlinear services is straightforward. This allows to offer hybrid services which combine linear and nonlinear elements.
- A particular spin-off of the project is the Travelguide application. The relevance of georeferenced recommendations will increase as mobile media consumption will grow.

Another 5G Broadcast trial is still ongoing in Hamburg.

More information is provided at: <https://www.5g-mag.com/trials>

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