Brussels 2015-01-12

Radio Spectrum Policy Group – Secretariat

DG CNECT B4: Spectrum – Office: BU33 7/55

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Response to the consultation on the *"Draft RSPG Opinion on a long-term strategy on the future use of the UHF band (470-790 MHz) in the European Union"*.

Dear Sirs,

Please find enclosed a response to the consultation on the Draft RSPG Opinion on a long-term strategy on the future use of the UHF band (470-790 MHz) in the European Union from Broadcast Networks Europe (BNE)[1].

Yours sincerely

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[1] BNE is a trade organization for Terrestrial Broadcast Network Operators for Radio and TV in Europe based in Brussels. The 16 BNE members are operating in 19 European countries. Members are Abertis (Spain), Arqiva (UK), České Radiokomunikace (Czech Republic), Digea (Greece), Digita (Finland), ETV (Serbia), Elettronica Industriale (Italy), Norkring (Norway), OiV (Croatia), ORS (Austria), Swisscom Broadcast (Switzerland), Radiocom (Romania), Rai Way (Italy), 2RN (Ireland), TDF (France) and Teracom (Sweden). In addition Terrestrial Network Operators in Belgium, Denmark and Monaco are represented by their respective parent (and BNE member) company. For further info see www.broadcast-networks.eu

Response to the consultation on the *"Draft RSPG Opinion on a long-term strategy on the future use of the UHF band (470-790 MHz) in the European Union"*.

This BNE response is structured as follows:

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1. Executive summary.

BNE has taken an active part in the definition of the long term strategy on future use of the UHF band to ensure that the future of the Digital Terrestrial Television (DTT) platform and its importance to European consumers and the audiovisual sector were taken into account.

In view of the upcoming WRC 2015, BNE will continue to contribute actively to the policy debate on the future use of the UHF Band, and will seek to ensure that policy decisions maintain ease of access and plurality of content consumption for European citizens and sustain the dynamic and highly competitive market for audiovisual content creation.

Considering the important role that terrestrial broadcasting already performs in the EU[2], BNE notes that any process to develop the long term strategy of the UHF band on which DTT depends should have DTT at its core.

BNE is generally supportive of the draft RSPG Opinion but would note the following:

- The 700 MHz Clearance process is complex for which transition planning and the development of frequency plans is yet to fully begin. Until these elements are in place and agreed it is difficult to know whether the proposed timeline set for Europe is realistic and further substantive effort is required by Member States to address this. Furthermore, we fully support the RSPG position on the need for improvements to receiver performance to minimise interference from LTE services but note that as co-existence modelling has been based on DVB-T2, in the event that Member States continue with DVB-T operation there will be an enhanced risk of interference which will need to resolved;
- With regard to future developments of DTT we see that to the use of DVB-T2 MPEG4/HEVC will be a key development in the move towards higher resolution content formats and for many countries the adoption of DVB-T2 MPEG4/HEVC may be necessary to ensure that DTT remains relevant to consumers and also deliver upon regulatory obligations.
- We welcome the position adopted with regard to the long term sustainability of DTT but note that the platform must be given the opportunity to develop which is not compatible with continually signalling the future end of the platform. Furthermore, it will also be important that the RSPG, the Commission and Member States work constructively to secure a funding arrangement that does not compromise the DTT platform during displacement of the 700 MHz band;
- The need for flexibility for wireless downlink services cannot be justified by the findings from recent studies, there are inherent incompatibility issues with the implementation and operation of a low tower low power network adjacent to an existing high tower high power service, and the technology to exploit this alternative architecture has not been standardised whilst the purported frequency efficiency gains cannot be achieved further challenging the potential of this concept;
- With regard to coexistence/sharing with other high value services in the UHF band, DTT and PMSE services have coexisted very effectively for many years and were PMSE

[2] See Appendix 3. The importance of DTT.

to be moved to another frequency band there would be considerable risk to audio video content creation and the economic value that the Production sector creates;

- With regards to Radio Spectrum Policy Programme (RSPP), BNE believes that terrestrial broadcasting should be afforded appropriate weight and priority in the Digital debate and that the regulatory framework should ensure that DTT is given due prominence in the future regulatory regime in particular the soon to be revised / updated RSPP;
- BNE strongly endorses the establishment of a transition roadmap in line with the proposals in the Lamy report and implementation measures limiting the negative impact on consumers and current DTT spectrum users, who should be protected from any future displacement of DTT. If the release date has to be common, the key features of the transition roadmap for DTT should also be common and an active commitment from the EU is needed;
- Finally, BNE emphasises the complementarity between DTT and mobile broadband networks as the right approach, when compared to a hypothetical convergence of networks and services. In BNE's view, it is now time to focus future activities on coexistence / cooperation, rather than convergence.

In summary, BNE:

- Believes it is premature to consider setting 2020 or 2022 as deadlines for the Europe wide completion of the 700 MHz clearance process as the planning / co-ordination process has barely started and there is too much uncertainty at this stage to commit. This is highlighted by the two end dates proposed demonstrating the lack of clarity.
- Supports the no mobile allocation on the 470-694 MHz and welcomes the position adopted with regard to the long term sustainability of DTT, specifically the recommendation that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future, i.e. 2030.
- Proposes, as mentioned in the Lamy report and concluded in the Aetha study, the 470 – 694 MHz band shall remain for DTT at least till 2030 and as such 2030 is not the end date for DTT in Europe. Therefore, "at least" or "beyond" should be added to the current text.

2. Comments on the Draft RSPG Opinion.

2.1 The 700MHz clearance process.

RSPG supports the provision of wireless broadband services in the 700 MHz band, and recommends the Commission, in cooperation with the Member States, striving towards a coordinated approach, including:

- *Defining, as early as possible the harmonised technical conditions for the use of 700 MHz by wireless broadband services.*
- *Proposing in a binding legislative measure such as an RSPP, the deadline by which the national authorisation process should be finalised and the deadline for making the band available for effective use for ECS in line with harmonized technical conditions.*

Recognising the importance of the 700MHz band in the provision of wireless broadband across the EU, the RSPG recommends that Member States should undertake the transition as soon as possible, noting that there are numerous challenges to overcome but urging Member States to move quickly.

Whilst BNE acknowledges the growing International momentum behind the future displacement of DTT services from the 700 MHz band, we continue to question the relevance of this frequency band in Europe to support growth in wireless broadband services. In particular, BNE and other Industry Stakeholders continue to urge mobile broadband spectrum forecasts to be recalibrated, based on proper estimation methods and unbiased analysis of traffic density, market sizing and technology improvements such as wi-fi offloading, mobile network configuration and compression[3].

In the event that DTT services are to be displaced from the 700 MHz band it is important to acknowledge the complexity and challenges associated with reorganising the DTT networks across Europe to accommodate today's services in less spectrum than is currently utilised. Furthermore, to address this complexity BNE strongly endorses the establishment of a transition roadmap in line with the proposals in the Lamy report and implementation measures limiting the negative impact on consumers and current DTT spectrum users, who should be protected from any future displacement of DTT.

In the event that wireless broadband services are deployed in the 700 MHz band the following criteria need to be addressed:

- The harmonised technical conditions of the 700MHz band and the rules for cross border coordination shall ensure the protection of broadcasting services in Channel 48 and below;
- All costs associated with the protection of the broadcast service in Channel 48 and below shall not be borne by the terrestrial broadcast industry or the Consumer.
- Whilst it is acknowledged that improvements to receiver specifications are needed to accommodate IMT services in the 700 MHz band. It is also worth noting that all the technical analysis has been undertaken assuming DVB-T2 networks, in the event the DVB-T systems are still in place post 700 MHz clearance, there is heightened risk of disruption to DTT networks and additional local interference mitigation arrangements may be necessary.

[3] As described on Appendix 2. Spectrum demand for Wireless Broadband. - there are other strategies to provide WBB services than the allocation of more and more spectrum.

- In addition, the channel plan under development should offer maximum flexibility for member states to utilise the duplex gap, the terrestrial broadcast service will remain a primary service and in order to maximise flexibility for Member States the Duplex Gap should be available for DTT services;
- Any binding legislative measure proposed by an eventual RSPP must take into account the diversity (license duration / market situation) on the different Member States as the FACT SHEET on Diversity from the Annex 3 of the Lamy report emphasises.

RSPG recommends Member States to make the 700 MHz band available for WBB as early as possible setting a deadline for making the band available for effective use for ECS. Two dates are under consideration i.e. 2020 and 2022. This is without prejudice to constraints arising from cross border frequency coordination problems with third countries.

BNE suggest that it is too early to judge whether 2020 or 2022 are appropriate deadlines for the completion of the 700 MHz clearance process in Europe as the detailed frequency planning / co-ordination process has only recently begun.

Furthermore, the transition planning, migration funding arrangements and network upgrades required for the clearance of the700 MHz band which is intensively used by DTT/PMSE/other, have not been defined. Without a clearly defined process for clearance that has been stress tested against a range of scenarios, there is a huge risk to the effective completion of the process in the anticipated timescales.

Cross border frequency coordination could generate difficulties and render un-useable the 700 MHz band for Wireless Broadband purposes in one country, if the neighbouring country continues to operate High Power DTT in the 700 MHz band. As acknowledged by the RSPG these co-ordination constraints on clearance timing may be exacerbated when dealing with third party countries. Hence they may need to be addressed in the common deadline for clearance with the potential option for an extension to the deadline where justified.

In addition, from a market perspective, the proposed date (2020 or 2022) seems too short as it should include time for:

- The Consumer Electronic manufacturers and retail channels to be primed with consumer equipment compatible with new standards (DVB-T2 MPEG4/HEVC for instance) to facilitate the technology transition where appropriate. This may be enabled by local legislation. It is anticipated that this process of enabling a technology transition of consumer equipment will take at least, 3 -5 years.
- Whilst, the normal product renewal cycle takes around 7-10 years and in order to accelerate this there may be the need for intervention.

RSPG recommends that Member States should develop and communicate to stakeholders and neighbouring countries in due time, a framework for the migration of broadcasting services below the 700 MHz band and also to take into consideration all practicable efforts to accommodate the various timelines of their neighbours for either implementing WBB or not;

For the migration of broadcasting services below the 700 MHz band, it seems reasonable to communicate and negotiate with stakeholders and neighbours with a clear timeframe and framework in order to minimise disruption for the end users.

However, it should be ensured the "*all practicable efforts to accommodate the various timelines of their neighbours for either implementing WBB*" will not result in interferences to the DTT service.

In order to facilitate adequate time for implementation of the necessary provisions to facilitate all Member States meeting the final deadline and noting RSPG recommends that the remaining Member States begin negotiations as early as possible to ensure that all necessary cross-border coordination agreements will be finalized at the latest by the end of 2017, taking into account the 3 year period envisaged by the RSPG Report "on proposed spectrum coordination approach for broadcasting in the case of a reallocation of the 700 MHz band". Member States should apply guidelines of the RSPG Report referenced above.

RSPG recommends those Member States with non-EU neighbouring countries to start bilateral negotiations with those countries as early as possible to reach the necessary cross-border coordination agreements.

The proposed deadline needs to be considered against the added complexity associated with the clearance of the 700 MHz band which will result in the existing terrestrial broadcast services needing to be accommodated within 30% less spectrum than today and will not have the spectrum flexibility afforded to the 800 MHz clearance process.

In any case, the work to achieve the cross-border coordination agreements during 2015 - 2016 – 2017 appears quite optimistic.

2.2 Future developments of DTT.

RSPG recognizes that the DTT platform evolves to new broadcasting technologies in the UHF band (i.e. DVB-T2 and/or possibly HEVC) and recommends that the European Commission should, in cooperation with Member States support national measures to facilitate transition to more spectrum efficient technology, including those mandating the inclusion of such technologies in the TV receivers;

BNE welcomes all national measures considered appropriate to facilitate transition to more spectrum efficient technologies. For many countries in Europe this will be fundamental to Member States being able to maintain existing DTT services on which consumers have come to depend, as well as delivering upon regulatory obligations. As highlighted above a technical transition will need to take into account that the product / renewal cycle for the TV equipment is around 7 -10 years and that the penetration in Member States differs from country to country.

From a technical point of view, Europe's DTT platforms are in the early stages of introducing DVB-T2 MPEG4/HEVC services, either for HD (when not introduced with DVB-T) in parallel with the existing DVB-T, or directly as a result of the Analogue Switchover (ASO) by those converting later. However, only two countries are fully DVB-T2 as per the figure below:

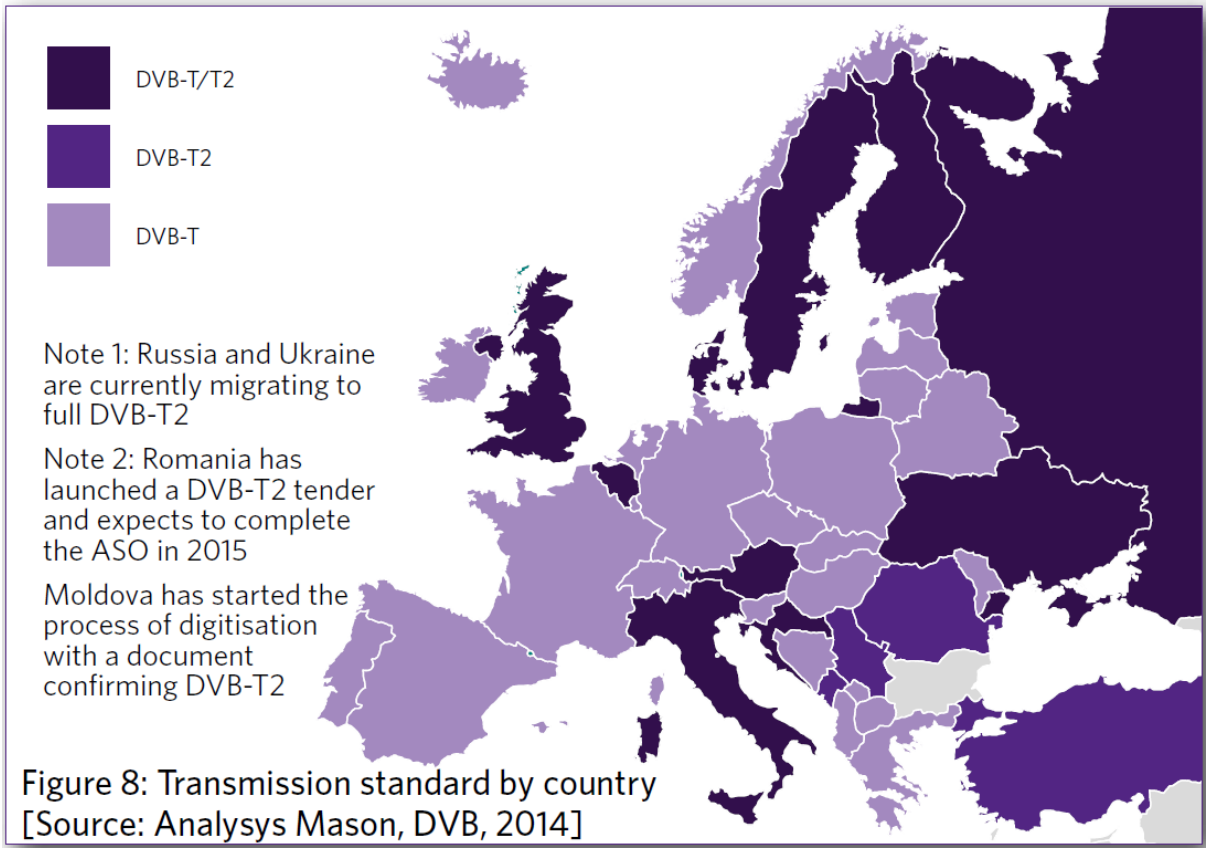


Figure 8: Transmission standard by country [Source: Analysys Mason, DVB, 2014]

Furthermore, it is anticipated that a technical transition will be fundamental to the sustainability of DTT platforms over the long term and to ensure its remains relevant through the increased provision of HD content and in the future potentially 4k services. The trend towards the consumption of higher resolution content formats, e.g. HD and ultra HD, will only be possible if DVB-T2 MPEG4/HEVC is adopted.

In any case, a migration to more efficient technologies will not mean that DTT needs less spectrum. On the contrary, as the Analysys Mason *Analysis of technology trends, future needs*

and demand for spectrum in line with Art. 9 of the RSPP demonstrates, DTT will need spectrum to support its continued evolution:

Technology trend	Impact assessment (short term)	Impact assessment (medium term)	Impact assessment (long term)
New digital video formats	++	++	++
Broadcasting encoding and transmission developments	=/+	=	– –
Alternative broadcasting platforms	–/=	–	–
Analogue switch-off / digital switchover	–/+	–	–
Single-frequency network (SFN)	–/=	–	–
Mobile TV / DVB-H	–	–	–
OVERALL ASSESSMENT	**+**	**+**	**+**

Consumer and Community Trends

Broadcast	Short term	Medium term	Long term
Growing linear TV consumption	=	=	=
Growth in the number of TV channels	+	=	=
Adoption of DTT	=	=	=
Take-up of DAB	=	= / +	= / +
Adoption of HDTV / UHDTV / 3DTV	+	++	++
Adoption of over-the-top (OTT) and impact on DTT	=	=	=
Number of MUXs	+	+	+
Digital TV switchover in Central and Eastern Europe (CEE)	=/+	=	=
Technology migration path	+	++	++
OVERALL ASSESSMENT	**+**	**+/++**	**+/++**

2.3 Long term sustainability of DTT.

RSPG recognises that the band 470-694 MHz is mainly used for downstream audiovisual content distribution and recommends that it remains as such for the long term, even beyond 2030;

RSPG recognises the importance of the DTT platform and the need to provide certainty for investments in broadcasting infrastructure. Therefore RSPG recommends that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future, i.e. 2030.

BNE welcomes the position adopted by the RSPG but note that in order to ensure that DTT continues to develop its position as European citizens preferred platform for all audio visual content delivery then it would be inappropriate to signal a future end date for DTT. DTT is not only the preferred platform; it has a significant direct impact on the European economy as outlined in Appendix 3. The importance of DTT.

To this end, BNE supports the approach proposed by the RSPG to take into account the core characteristics of the DTT platform as set out in the Opinion and welcomes the recommendation to retain the current exclusive use of frequencies below 700 MHz for DTT for the foreseeable future, to secure future investments in broadcasting infrastructure, especially in the context of making 700 MHz band available for WBB.

This need for long term access to spectrum for DTT is further endorsed by the Lamy report and the conclusion of a recent study by Aetha (see Appendix 4. Aetha study on "Future use of 470-694MHz".), that the band shall remain for DTT at least till 2030 where 2030 is not the deadline for DTT services to cease in Europe. Therefore, "at least" or "even beyond" should be added to the current text.

BNE acknowledges that the RSPG recommendations are in line with the conclusions of a range of studies / initiatives, e.g. The High Level Group (Lamy Report), TG6 Study Group, Ofcom ongoing UHF analysis, etc.

It is important to note that the TG6 report recognised that the LTE eMBMS technology was not capable of replicating the DTT service due to technical limitations in the standard. In particular mobile radio technologies are not as spectrally efficient as DVB standards.

Finally, as noted in a recent report published by Aetha on the future use of the 470–694MHz band it concluded that there was no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency as even with the most aggressive mobile traffic forecast, the costs of clearing DTT from the spectrum significantly outweighed the potential value of using the spectrum for mobile by a factor of almost four (see section 7 Appendix 4. Aetha study on "Future use of 470-694MHz".).

Consequently, in order not to create uncertainty for the needed investments for potential clearance of the 700 MHz band, and as well as for allowing the DTT platform to further innovate, BNE supports the RSPG Opinion for WRC 15of no mobile allocation on the 470-694 MHz and welcomes the position adopted with regard to the long term sustainability of DTT, specifically the recommendation that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future, i.e. 2030.

2.4 Flexibility for wireless downlink services

Notwithstanding, the RSPG recommends that Member States should have the flexibility to use the 470-694 MHz band for WBB downlink, provided that such use is compatible with the broadcasting needs in the relevant Member State and does not create a constraint on the operations of DTT in this band, including for neighbouring countries;

BNE is sceptical with the economical viability, and therefore commercial relevance, of such a *flexibility* option. The need for flexibility for wireless downlink services cannot be justified by the findings from recent studies, there are inherent incompatibility issues with the implementation and operation of a low tower low power network adjacent to an existing high tower high power service, and the technology to exploit this alternative architecture has not been standardised whilst the purported frequency efficiency gains cannot be achieved further challenging the potential of this concept;

RSPG recommends that, when considering any options for the future usage of the frequency band 470-694 MHz, aspects such as the requirements, technological developments, consumer behaviour, the importance of delivering free-to-air television and the various political, social, cultural and economic general interest objectives when this is achieved through the DTT platform, should be taken into account.

BNE welcomes in the RSPG opinion the acknowledgement of the strategic importance of terrestrial broadcasting to the European audio-visual sector and that this should be taken account of in the decision process that will deliver 700 MHz clearance..

DTT has become an essential part of the European audiovisual model representing a key pillar of European content creation, enabling freedom of choice, cultural diversity and political cohesion as outlined in Appendix 3. The importance of DTT.

Terrestrial networks are, in most EU countries the only platform where free-to-air public service channels are broadcast unencrypted and without subscriptions and hence have a unique and central role in bridging the Digital Divide.

2.5 Coexistence/sharing with other high value spectrum users

The RSPG believes that there is a need to have technically appropriate and sufficient spectrum for PMSE and consider that depending on developments and requirements of such services, there could be a need to identify additional spectrum. RSPG encourages the PMSE industry to develop more advanced and spectrum efficient technologies. In addition Member States should also seek to promote spectrum sharing and ensure that licence conditions in bands currently used are as flexible as possible;

DTT and PMSE have had an effective and successful coexistence arrangement for many years. The PMSE community has to be given security of access to spectrum and appropriate assurances at least for the same timeframe as DTT. Were PMSE to be moved to an alternative frequency band there would be considerable disruption and potential risk to the audio visual content creation sector, a driver of high economic value creation and employment.

2.6 Compensation mechanism.

RSPG recognises that the mechanism of possible compensation is a national issue. RSPG recommends that the commission assists the transition by providing early guidance to the relevant Member States, in particular clarifying cases where it would not be compatible with state aid rules.

BNE recognises the importance of clear guidance and appropriate funding to be put in place to ensure that Member States can progress a clearance process in a timely manner providing adequate funding for network changes, consumer support, consumer equipment upgrades, interference mitigation, etc.

This is clearly set-out in the Lamy report:

- *"It is essential that timely and sufficient funding is provided, in particular for the costs of:*
    - *communication activities*
    - *changes to DTT networks and early economic depreciation of assets*
    - *simulcast*
    - *support to the trade stakeholders*
    - *user support and help schemes*
    - *mitigation of interference to DTT reception after the transition*
    - *upgrading or purchase of new PMSE systems and equipment*
    - *access to radio spectrum at affordable costs for licensed PMSE use wherever the case*
- *Compensation of the costs incurred in the transition should not be subject to the application of state aid rules.*
- *The government and the relevant authorities, including the spectrum, content, and competition regulators, have the leading role and the overall responsibility for the transition process. In particular, they need to define key objectives, ensure sufficient funding and drive the transition".*

In any case, the costs of this transition should not be borne by the broadcast industry.

2.7 Public Safety frequency requirements

RSPG recognises that implementation of broadband PPDR networks is a national issue.

The security and emergency systems requirements differ from country to country. It is therefore important to take into account that National and sub-national Administrations have diverse requirements for PPDR services and that there is no obvious compelling need for dedicated and harmonised spectrum for this service across Europe.

In addition, BNE notes the important role that Broadcast services take in delivering emergency information to society.

BNE considers essential that the definition of the harmonised technical conditions for IMT services in the 700MHz band and the defined 9MHz guard band (694-703 MHz) shall be maintained to ensure the protection of broadcasting services in Channel 48 and below as determined by the CEPT.

2.8 Technical Platform Developments

RSPG notes that TV receiver standards should take full account of the evolution of the 700 MHz band and include as early as possible appropriate receiver parameters (e.g. selectivity and blocking). Therefore, RSPG recommends that the Commission liaises with ETSI and CENELEC to ensure that the new development in the 700 MHz band will be fully taken into account when writing or revising EMC and "radio" harmonized standards for TV receivers and for any other electronic products (such as antenna mast amplifiers) intended for TV installations.

BNE supports the approach proposed although feel that in order to provide scope for the platform to develop the technology transition should enable enhancements to the platform in terms of number of television channels and/or resolution quality as well as enable hybrid / connected services .

Furthermore, with the reduction in spectrum available to DTT through the displacement from the 700 MHz band and in order for the platform to be able to maintain and grow, it is vital that the platform is able to evolve and hence adopt higher efficiency compression and other technical developments in the future.

BNE supports the need for improved receiver performance as this is critical to minimise the disruption caused by the LTE system to be deployed in the 700 MHz band.

3. Specific comments on the text.

BNE makes specific observations on the RSPG text:

Page	RSPG original text	BNE proposal	Rational
9	*Due to other competing delivery platforms, mainly cable and satellite, the importance of DTT platform providing audiovisual media and free-to-air services varies greatly among the EU Member States.*	*Due to other competing delivery platforms, mainly cable and satellite, the importance of DTT platform providing audiovisual media and free-to-air services varies greatly among the EU Member States. Nevertheless, **DTT continues to be the most consumed platform for the delivery of free-to-air audio visual content as Euro barometer shows**.*	It should be emphasized that, even in today's competitive market for content distribution, circa 50% of European households have chosen DTT as the means to receive audiovisual media services free-to-air.
9	*DTT free-to-air content can be received without any contract with a service provider or platform operator and without requiring a reverse channel. It can be accessed by often already existing- roof-top antenna systems or through portable reception in reduced coverage areas around the transmitter sites using widely available receivers based on DVB-T/DVB-T2 standards.*	*DTT free-to-air content can be received without any contract with a service provider or platform operator and without requiring a reverse channel. It can be accessed by often already existing- roof-top antenna systems or through portable reception **where signal strength permits, e.g. networks in Germany and Austria are designed for in-door reception,** ~~in reduced coverage areas around the transmitter sites~~ using widely available receivers based on DVB-T/DVB-T2 standards.*	DTT networks are mainly designed to provide roof top coverage. However, the robustness of DTT enables portable reception in the areas where received field strength is sufficient and generally closer to the transmitter.
27	*RSPG recognises that the band 470-694 MHz is mainly used for downstream audiovisual content distribution and recommends that it remains as such for the long term, even beyond 2030;*	*RSPG recognises that the band 470-694 MHz is mainly used for ~~downstream audiovisual content distribution~~ **DTT** and recommends that it remains as such for the long term, even beyond 2030;*	The downstream audiovisual content distribution mechanism in the band 470-694 MHz in Europe is DTT.
27	*RSPG recognises the importance of the DTT platform and the need to provide certainty for investments in broadcasting infrastructure. Therefore RSPG recommends that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future, i.e. 2030.*	*RSPG recognises the importance of the DTT platform and the need to provide certainty for investments in broadcasting infrastructure. Therefore RSPG recommends that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future, **beyond** 2030.*	As per above, the band 470-694 should remain to downstream audiovisual content by using DTT not only till 2030 but beyond 2030.

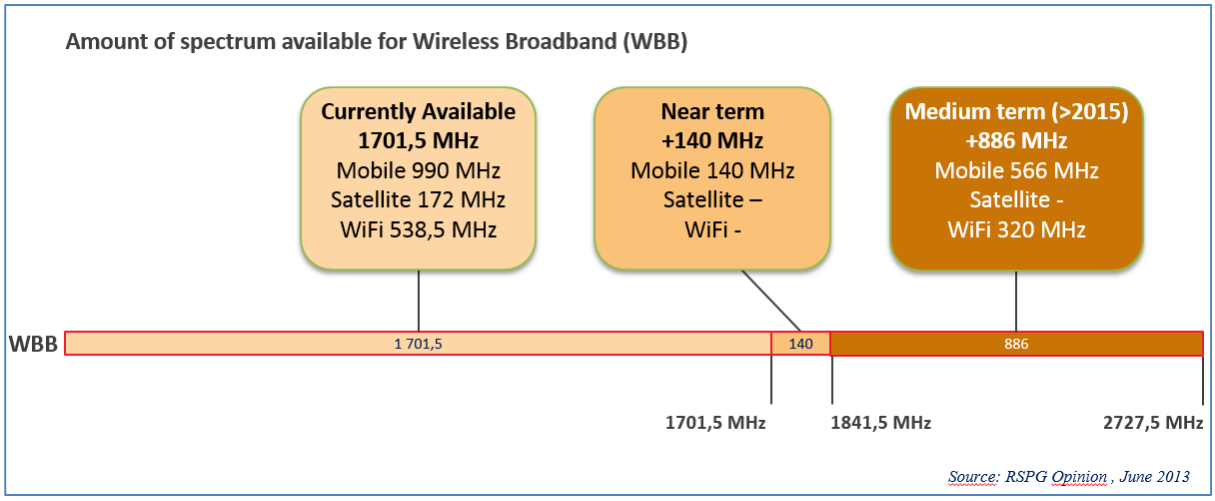
4. Appendix 1. Comments on the coexistence of Broadcast and Broadband.

BNE endorses the RSPG conclusion of the lack of scope for convergence between broadcast – broadband on a single platform point of view. This conclusion is also sustained by the Plum study as it concludes that there is no economic case for convergence.

BNE recognizes the complementarity between DTT and fixed / mobile broadband networks as the optimum approach in comparison to hypothetical convergence of networks. In BNE's view, it is time to embrace coexistence of platforms rather than convergence.

5. Appendix 2. Spectrum demand for Wireless Broadband.

Regarding the "RSPG13-521 opinion on STRATEGIC CHALLENGES FACING EUROPE IN ADDRESSING THE GROWING SPECTRUM DEMAND FOR WIRELESS BROADBAND", wireless broadband (WBB) will gain access to a huge amount of spectrum as illustrated below:



- 1701.5MHz is currently available for Wireless Broadband
- 140 MHz additional spectrum will be / is allocated in the near term.
- 886 MHz additional spectrum will be allocated in the medium term.

This additional spectrum is / will be allocated on the basis of existing mobile data traffic forecasts. However, mobile data demand forecasts are inherently uncertain and caution should be exercised when taking regulatory action which relies upon them. This is particularly the case where the acknowledged leader in the field of mobile data demand forecasts, Cisco, has twice reduced its mobile data forecasts. The adjusted estimates were subsequently challenged by other recognised authorities in this field, i.e. Analysys Mason, LS Telecom and OFCOM, as still significantly overstating the likely level of future data demand.

Furthermore, the mobile data traffic forecasts are subject to ongoing challenge and hence mobile broadband spectrum requirements are also subject to challenge. According to different independent reports issued by consultancies and organisations, there is a significant risk for the ITU to base future spectrum demands for Mobile Broadband on input assumptions and market projections that are questionable. Two examples are given below:

- European Broadcasting Union (EBU): "Report ITU-R M.2290 is the key document on which mobile spectrum requirements are based. This Report has been published in order to substantiate the request of the mobile industry for additional spectrum for IMT. However, it has been shown here that this Report is flawed, both with respect to the input assumptions for calculating the spectrum requirements, and the mathematical approach used for the prediction of data traffic evolution. As such, the conclusions taken in this Report are wrong and should not be relied upon in the current debate about spectrum requirements of IMT systems.

  Furthermore, the traffic predictions have been made without taking account of economic aspects or market developments that will have significant impact on the

actual demand and, consequently, the spectrum requirements. These factors may well prove to be decisive in determining the future evolution of mobile data traffic".

- LS Telcom: "We have identified that there is a fundamental problem with the ITU model in that the traffic density does not appear to have been benchmarked against total predicted traffic in any particular country. Having undertaken such an analysis, our conclusion is that the traffic densities which drive the ITU's spectrum demand forecasts are at least two orders of magnitude (i.e. a factor of 100 times) too high when compared with those which would be expected in any developed or developing country in a 2020 timeframe".

There is clearly growing evidence that mobile data demand forecasts are significantly overstated. Furthermore, the basis for the data growth estimates for mobile have been questioned by some industry sectors with the claim that base assumption regarding population density are two orders of magnitude too high. If this claim is substantiated the high data capacity growth projections for mobile will have to be significantly downgraded and regulatory policy adjusted accordingly.

In our view, in addition to the need for more realistic forecasts, there are further aspects to be taken into account when assigning additional spectrum to IMT services:

- **Refarming**: the current mobile services still include mobile "narrowband" technologies GSM or 2G. The spectrum allocated to these technologies should be reallocated to more efficient technologies in order to improve the current use of the spectrum.
- **Efficient roll out**: the expansion of the use of small / pico / femto cells and network densification of the Mobile Networks to increase data capacity is better addressed by access to higher frequency spectrum whether the user equipment is static or mobile.
- **Wi-Fi offloading**: has been recognised as a significant access solution for 'mobile' data consumption, which is typically static and facilitated by traffic offload on to Wi-Fi[4]. Wi-Fi plays an important role (around 80% of traffic to mobile devices is connected to Wi-Fi access points), this role is expected to grow and there is intention to release additional spectrum to the Wi-Fi service.
- **Rural coverage:** low frequency spectrum is considered important for rural broadband services, but in the current Mobile Operator deployments of the 800MHz band are not seeking to exploit this opportunity due to the lack of commercial benefit of Mobile Broadband network roll out to rural areas. If this is the case at 800 MHz, then, surely it will be the case at 700 MHz and hence the full benefit of the low frequency spectrum will not be realised without Regulatory intervention.

It is also worth noting that a recent report published by Aetha on the future use of the 470–694MHz band concluded that there was no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency as even with the most aggressive mobile traffic forecast, the costs of clearing DTT from the spectrum significantly outweighed the potential value of using the spectrum for mobile by a factor of almost four (see section

[4] Wik/Aegis, Study on Impact of traffic off-loading and related technological trends on the demand for wireless broadband spectrum, http://bookshop.europa.eu/en/study-on-impact-of-traffic-off-loading-and-related-technological-trends-on-the-demand-for-wireless-broadband-spectrum-pbKK0113239/

Appendix 4. Aetha study on “Future use of 470-694MHz”.). Further, the study also concludes the introduction of a co-primary allocation to mobile at WRC15 would have considerable negative impacts on DTT. Given the history of DTT spectrum being awarded co-primary status for mobile and that then leading to the spectrum being cleared for mobile, granting a co-primary allocation to mobile in the 470–694MHz band would undermine both consumer and investor confidence in the future of the platform. This would lead to the DTT platform falling behind other television platforms and even unnecessarily risk its viability, with little benefit to be derived, as such a Regulatory Intervention would result in Market Failure.

In conclusion, BNE calls for Mobile Broadband spectrum forecasts to be recalibrated, based on proper estimation methods and unbiased analysis of traffic density, market sizing and the impact of technology improvements such as Wi-Fi offloading, mobile network configuration and compression.

6. Appendix 3. The importance of DTT.

Spectrum management is a central issue intimately tied to the provision of terrestrial television and radio broadcasting, the capacity of citizens to participate in the public discourse, the breadth of consumer choice and the preservation of local identity. Over half of European households – 250M European viewers – choose television via digital terrestrial television (DTT) as their preferred means of media consumption. Low cost, accessible, local, reliable, regulated, plural - digital terrestrial television is incontestably the preferred choice of Europeans and a an economically rationale means of delivering AV works in Europe over the long term. Moving away from DTT would result in a loss of €38 billion to the EU economy[5]. Similarly, 80% of the EU population listens to the radio for 2 to 3 hours a day, mostly through broadcasting (analogue and digital).

Linear television continues to be the most efficient means to address the reality of national and local identities and upholds Europe's unique audio-visual model. This model is comprehensive and virtuous. Without it Europe would likely face a consolidation of production in only a few cities, to the detriment of a very high number of citizens.

Terrestrial networks are, in most EU countries the only platform where free-to-air public service channels are broadcast unencrypted and without subscriptions and hence have a unique and central role in bridging the Digital Divide.

DTT networks and Europe's broadcasting ecosystem are a key pillar of the European cultural, creative and media industries and these are an essential pillar of the digital economy and one of the key assets of Europe, in every dimension:

- Accounting for 6.8% share of GDP (€860 billion) and 6.5% of Europe's employment (approximately 14 million direct and indirect jobs), according to the TERA report[6];
- Creating and investing in digital platforms, Europe's digital market for cultural products and services are providing more and more choice to consumers despite enduring a huge and unfair competitive pressure from illegal or unregulated services that destroy jobs and investment opportunities;
- Combining the forces of large and successful European-based companies competing in a global market alongside +1.4 million small and medium sized enterprises[7] (responsible for over 80% of generated revenue) which tie together European territories and are deeply rooted within local economies and national cultures. They employ a highly skilled, non off-shorable and well-educated workforce;
- Including small, medium and large entities - employers and workers - that jointly constitute the flagship and the backbone of creative industries in Europe. Together they stand at the forefront of Europe's fresh start to provide more jobs for European citizens.

[5] AETHA study, see Appendix 4. Aetha study on "Future use of 470-694MHz".

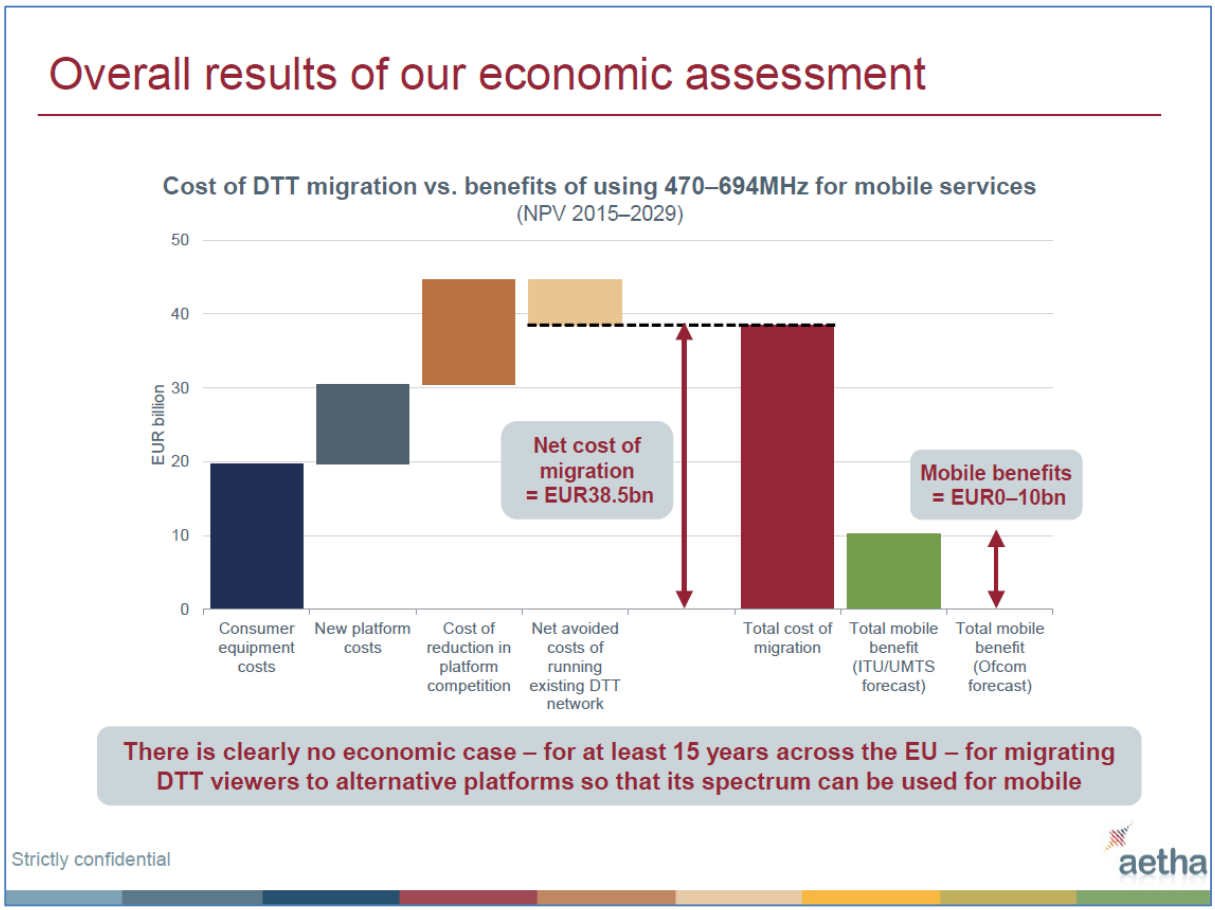
[6] Laurent Benzoni and Philippe Hardouin, The economic contribution of the creative industries to EU GDP and employment - Evolution 2008-2011, Paris, September 2014

[7] sic

7. Appendix 4. Aetha study on "Future use of 470-694MHz".

The Aetha study considers a scenario in which DTT transmissions cease and consumers are required to migrate to alternative platforms (a mixture of satellite, cable and IPTV). All 224MHz of spectrum in the band then becomes available for mobile services.

The study calculates the costs and benefits of this scenario over a 15year period (2015 to 2029) and compares them to the costs and benefits of continued use of the spectrum for DTT and other existing uses (PMSE, radio astronomy and 'white spaces'). The benefits from making spectrum available for mobile are highly sensitive to forecast traffic levels. Therefore, the study considers a range of traffic forecasts, the highest of which is based on forecasts from the ITU and UMTS Forum.



The results of the report show that even in the most aggressive mobile traffic forecast, the costs of clearing DTT from the spectrum (EUR38.5bn) significantly outweigh the potential value of using the spectrum for mobile (EUR10.3bn) by a factor of almost four. When a less aggressive traffic forecast is used, the costs of clearing DTT are unchanged but the value of using the spectrum for mobile would be near to zero.

As the study describes, it is clear that the economic benefits for the EU are maximised if the 470–694MHz band continues to be used for DTT for at least the next 15 years – there is clearly no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency.

Further, the introduction of a co-primary allocation to mobile at WRC15 would have considerable negative impacts on DTT. Given the history of DTT spectrum being awarded co-primary status for mobile and that then leading to the spectrum being cleared for mobile, granting a co-primary allocation to mobile in the 470–694MHz band would undermine investor confidence in the future of the platform. This would lead to the DTT platform falling behind other television platforms and even unnecessarily risk its viability, with little benefit to be derived.