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Response to the consultation on the "Draft RSPG Opinion on Strategic Challenges facing Europe in addressing the Growing Spectrum Demand for Wireless Broadband."

Dear Sirs,

Please find enclosed a response to the consultation on the RSPG "Opinion on Strategic Challenges facing Europe in addressing the Growing Demand for Wireless Broadband." from Broadcast Networks Europe (BNE)¹.

Yours sincerely



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Enclosure: Memorandum "Response to the consultation on the Draft RSPG Opinion on Strategic Challenges facing Europe in addressing the Growing Spectrum Demand for Wireless Broadband" from Broadcast Networks Europe (BNE)

¹ Broadcast Networks Europe (BNE) is a trade organisation based in Brussels for European Terrestrial Broadcast Network Operators. BNE currently has 16 members with operations in 22 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), RTENL (Ireland) TDF (France) and Teracom (Sweden). In addition Terrestrial Network Operators in Belgium, Germany, Estonia, Hungary, Monaco and Denmark are represented by their respective parent (and BNE member) company.

Response to the consultation on the “Draft RSPG Opinion on Strategic Challenges facing Europe in addressing the Growing Demand for Wireless Broadband” from Broadcast Networks Europe (BNE)²

This BNE response to RSPG draft Opinion on Strategic Challenges facing Europe in addressing the Growing Demand for Wireless Broadband is structured as follows:

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1. Executive Summary

BNE welcomes the approach adopted by the RSPG as outlined in the document and in particular the extensive analysis undertaken prior to the formulation of the RSPG draft Opinion. This has resulted in a balanced assessment of the difficulties associated with predicting the technological and economic trends underpinning the demand for wireless broadband in Europe, and their relation to the high costs that a further clearance of the broadcast services in the 700MHz band and reallocation in the UHF band would entail, both for consumers and for the television industry.

However, it would appear that some elements of this analysis have been overlooked when the RSPG prepared the Draft Opinion, and these aspects, as summarised below, should be addressed in order to ensure that the analysis is complete and balanced.

- **Important role played by DTT across Europe**
- **Further displacement of DTT services out of existing spectrum should be subject to detailed Cost-Benefit Analysis**
- **Refarming of existing IMT spectrum which is currently occupied by legacy systems, e.g. GSM and EDGE, should be prioritised**
- **Greater emphasis on the importance of Wi-Fi offload and Small Cells to deliver the growth in data traffic**
- **Due consideration given to the extent to which traffic is truly mobile, i.e. subject to cell handover**
- **Greater scrutiny be given to growth forecasts for wireless broadband traffic with key forecasts recently revised down.**

Taking into account that the medium term objective of the 1200 MHz has already been met and in light of the observations that have been made in this BNE response to the Draft Opinion we propose to change the status of the 700 MHz band for wireless broadband in Annex 1 from “Medium term potential” to “Possibly in very long timeframe” and that 470-694 MHz band should appear in grayish light blue colour meaning “*Limited or None*” in Annex 1. Reference to the 470-694 MHz band should as a consequence be removed from Annex 2.”

Considering the importance and impact of the availability of spectrum for the terrestrial broadcasting industry and the very large share of European consumers that depend on it, BNE is committed to working with the RSPG to ensure that fully informed decisions are made and that the future spectrum strategy that is developed is optimised to support the interests of the consumer from both DTT and wireless broadband perspectives.

2. General considerations

Digital Terrestrial Television (DTT) is a spectacular success. With its low cost and easy access it has become the most popular delivery platform for television content in Europe. European consumers have embraced DTT and are investing in new receiving equipment to gain access to the service. DTT networks now deliver some 2000 TV channels and this content is enjoyed in about 50% of European households by 275 million viewers, each spending some 4 hours watching linear TV every day. This success has also contributed to the very large adoption of the European DVB-standards for DTT around the world.

Consumers and the Terrestrial Broadcast Industry have made substantial investments to switch over from analogue TV to DTT, enabling the release of the 800 MHz Digital Dividend spectrum for Mobile Broadband services, resulting in a very efficient and intensive use of the remaining 470 - 790 MHz spectrum band. Furthermore, broadcast network operators continue to invest to optimize network design to efficiently utilize the spectrum as per the GE06 frequency plan, adjusted to take-account of the clearance of 800 MHz.

A recent detailed appraisal of the spectrum needs of DTT in the UK has concluded that the DTT platform has a key role to play in the delivery of content to UK consumers until at least 2030³. It must also be taken into consideration that in several EU member states already existing licenses for terrestrial broadcasting extend to 2020 and beyond.

From this perspective, BNE considers it of paramount importance that the process currently underway should address the important role played by the DTT platform across Europe and that sufficient certainty is needed to support both current and future investments to ensure that competition is maintained and that the investments made by citizens and the broadcasting industry are considered.

The alleged demand for more spectrum for wireless broadband services is not yet proven. As the RSPG document describes, spectrum still remains under-utilised even though it has been harmonised and made available to wireless broadband. Furthermore, the forecasts made by some vendors and / or consultants⁴ on which the need for more spectrum is based are worthy of greater scrutiny and have been recently and substantially revised downwards. Moreover the capacity of wireless broadband networks could, with a few adjustments, be enhanced by:

- The full exploitation of all spectrum allocated.
- Refarming of current spectrum bands that are deployed to deliver legacy services based on GSM / EDGE.
- Technical upgrades to the network: increase the spectral efficiency through enhancements such as Carrier Aggregation, Interference Control, Coordinated Multipoint Transmission (CoMP), etc.
- Topology enhancements to increase the spatial efficiency with pico/femto/smallcells, intelligent antennas, etc.

Recognising the breadth of enhancements that could be deployed to enhance the performance of existing spectrum assets to deliver wireless broadband services, and in light of the substantially decreased projections for wireless broadband growth, it seems strange that there is continued pressure to further displace DTT services out of the remaining UHF band when there is no alternative for the DTT platform.

³ For example, OFCOM: *Securing long term benefits from scarce low frequency spectrum*, November 2012 http://stakeholders.ofcom.org.uk/binaries/consultations/uhf-strategy/statement/UHF_statement.pdf

⁴ Cisco, The 2013 VNI forecast shows considerably less growth than the 2012 VNI forecast. See Fig 1, Page 5 and Analysys Mason Fig 4 and 5 in Section "Illustrations"

DTT Services in the UHF Band: Little scope for further displacement

Clearance of the 700 MHz band, which represents 30% of current spectrum used by DTT, would be dramatically different to the clearance of the 800 MHz band as has been acknowledged by the RSPG. In particular, the disruption and complexity involved from network changes and the need for consumer equipment upgrade (i.e. equipment has to be replaced) without any obvious consumer benefit.

Furthermore, frequency planning of DTT is quite a complex task and re-farming would require a substantial revision of the GE06 frequency plan with significant economic consequences for the broadcast industry as a whole (network operators, broadcasters, television channels and content creators) and for consumers. We assert that an extensive Cost-Benefit analysis is necessary prior to any decision to clear the 700 MHz band. This analysis should take account of recently revised and “considerably less exponential” forecasts for mobile data traffic growth from both Cisco and Analysys Mason⁵ alongside the impact and economic consequences of clearing the band, including a detailed appraisal of the costs of network changes/transition/interference mitigation/consumer management taking account of compensation both for the consumer and broadcasters / network operators where necessary. This analysis should endeavour to determine the timetable, legal / regulatory aspects as well as the social / cultural / political impact of such a dramatic change, including its impact on European originated content production.

To date the spectrum discussion has been primarily focussed on the needs of the wireless broadband and IMT sector with little account taken of the consequences to existing licensed and commercially attractive services in the Broadcast UHF band 470 – 790 MHz. Whilst we recognise that there is growth in wireless broadband data traffic we believe that it is important to note that this growth in traffic is already being served by a combination of technology solutions, i.e. Fixed, Wi-Fi and terrestrial IMT and Satellite broadband networks, which will be further augmented by the new 800 MHz and 2.6 GHz wireless networks being rolled out. Furthermore, the bulk of data traffic takes place in residential areas, where UHF spectrum is far less relevant than spectrum at higher frequencies.

Moreover, DTT networks already exist and provide an efficient means of delivering very large volumes of data traffic, typically in the form of Audiovisual Content. For this purpose the DTT platforms are cost efficient, spectrum efficient and extremely reliable⁶. In this context DTT has become an essential part of the Audiovisual Ecosystem representing a key pillar of European content creation, freedom of choice, cultural diversity and political cohesion. Finally, Digital Terrestrial Television is proving to be what consumers want: an easy and immediate means of accessing a multitude of TV and radio channels, complemented by a fast developing offer of hybrid interactive services. Therefore any political action sacrificing the value brought by DTT to European citizens in order reach long term policy targets (as the deployment of ultrafast broadband networks) would most likely end up with counterproductive effects, i.e. higher costs for consumers, reduced access to European audio-visual content, lower quality and diversity of free to air TV on offer and reduced competition.

Whilst, technical enhancements to Europe’s DTT networks are already underway through the introduction of the DVB-T2 standard, increasing the number of High Definition services available is essential to meeting consumer demands and sustain competition. However, a transition to DVB-T2 would be substantially different than the digital switch over to DVB-T. A transition to DVB-T2 services has been studied or is underway in only a limited number of countries as the approach requires:

1. A clear benefit for consumers.
2. A simulcast period to facilitate the transition. This is difficult due to the intensive nature in which the remaining broadcast UHF spectrum is used.

⁵ Cisco, The 2013 VNI forecast shows considerably less growth than the 2012 VNI forecast. See Fig 1, Page 5 and Analysys Mason Fig 4 and 5 in Section “Illustrations”

⁶ DTT Networks. Fig 6 in Section “Illustrations”

3. HEVC which only now is appearing in receiver equipment. The legacy universe for consumer equipment is considerable and likely to take circa 10 years to displace.
4. Stable, long term certainty over access to radio spectrum to sustain investment and innovation.

In addition, it's necessary to take into account that the situation of broadcasting in each Member State is very different. A new reallocation process in the 700 MHz would have a different impact on consumers depending on penetration of DTT, infrastructure legacy and economy. In some countries, Italy for example, DTT is the only TV platform competing with satellite and consumers expect a large choice of TV content for free. In several member states, e.g. Italy, Greece, Spain, France and the UK, between 75% and close to 100% of households have at least one TV-set receiving audiovisual content from the DTT networks.

We envisage a bright future for DTT in Europe with continued investment and innovation to support the migration to HDTV and to accommodate 3D and UHDTV in the future using the next generation of technology DVB-T2/HEVC. However, this will only be possible if the platform is afforded the appropriate certainty and access to spectrum over the long term. Furthermore, we believe that the Market and Consumers should be allowed to choose their preferred platforms for broadband services and media distribution. The market should not be biased by a far reaching regulatory intervention that results in a distortion of competition and choice. To not interfere with market forces is the philosophy normally adopted by the EC and should also apply in this case.

3. Specific Comments and Observations on the document

Section I

In *Section I*, when dealing with the request received by the RSPG, there is a reference to “the bands already earmarked by the European Parliament and Council, i.e. the 700 MHz band, the 1.5 GHz band and the 2.3 GHz band”. To BNE’s knowledge neither the European Parliament nor the Council but only the European Commission has earmarked these bands. In addition, in the same Section I, the document asserts “that 1701.5 MHz of spectrum can be identified as being already available for wireless broadband with a further 140 MHz identified with the potential to become available in the near term (by 2015) and 886 MHz having been identified as spectrum with potential to support broadband applications in the medium term (i.e. beyond 2015)”. In this sense, there are 1841.5 MHz already identified as suitable spectrum for wireless broadband by 2015, so the RSPP objective of identifying at least 1200⁷ MHz has already been achieved without the need to include the 700 MHz band or the remaining broadcast UHF band.

Referring to the same issue, in *Section VIII*, page 15, the RSPP appears misquoted when referring to making at least 1200MHz of spectrum available for wireless data traffic by 2015: the RSPP asks for identification, not availability. This observation also applies to the observation regarding the targets highlighted above.

Furthermore, the analysis does not consider in a balanced way the benefits that can be expected from technical enhancements. On the one hand (page 10) the migration from GSM to new technologies (LTE) is expected to be made “very gradually”, whilst (page 17) new technologies for Broadcast are presented as key for increasing spectrum efficiency. This disregards the fact that replacement cycles of TV reception equipment are much longer than those of mobile phones. Consequently this consideration is absent of the recommendation section, as well as missing from the supporting information included against the bands considered in Annex 2. Hence, the benefits of technology

⁷ In the RSPP the 1200 MHz target was not broken down into different spectrum types as presented here, hence the whole of the 1701.5 MHz of frequency identified is relevant to achieving the objective set.

refresh to GSM services should be considered as part of the strategic plan and included as a fifth item against the RSPG's 2nd recommendation.

Section IV

Our assertion, based on considerable evidence, is that high data volumes are predominantly consumed indoors where Wi-Fi networks are heavily utilised to deliver services. The number of Wi-Fi networks is growing exponentially and Wi-Fi is becoming available wherever there is demand. As a comparative example the location of GSM base stations and active Wi-Fi networks along streets in Amsterdam are shown in Figures 1 and 2 respectively. Hence, we endorse the observation in the draft Opinion that the traffic routed over Wi-Fi networks is growing much faster than the traffic routed over the mobile networks. This in turn means that the motives to use the 700 MHz band for mobile data services are weak both in terms of the need to add capacity in the mobile networks and indoor coverage.



Figure 1 GSM deployments in Amsterdam

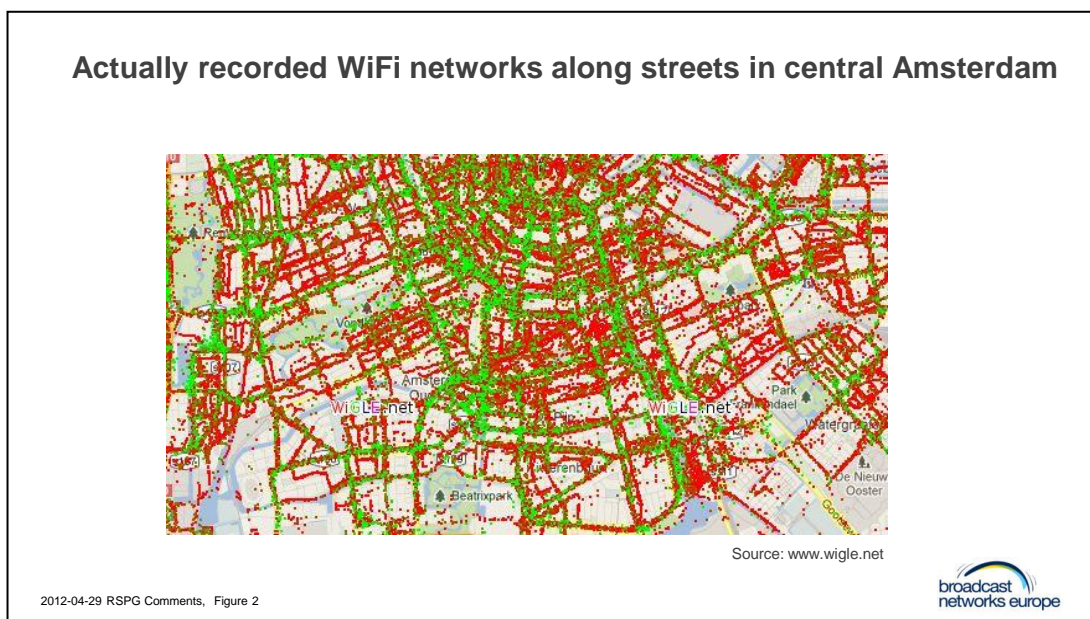


Figure 2 Active Wi-Fi services in the same area of Amsterdam

As noted earlier, the RSPG draft Opinion appears to be putting unnecessary pressure on the DTT service to migrate to more efficient technologies like DVB-T2 and HEVC and even proposes legislative measures to mandate technical capabilities of DTT receiving equipment. Whilst the introduction of more efficient technologies to the mobile networks appears to have a lower priority - “will be made very gradually”. The asymmetry of burden that the RSPG is proposing to put on the DTT and the Mobile industry and on consumers will result in an intentional disadvantage for DTT and will not comply with the requirement in the RSPG to “encourage efficient management and use of spectrum to best meet the increasing demand for use of frequencies reflecting the important social, cultural and economic value of spectrum.”.

Section V

BNE endorses the observations made by the RSPG in terms of the risks of driving too hard for harmonisation and that a ‘one size fits all’ approach is not always relevant or appropriate as highlighted by the examples provided of spectrum currently not being fully utilised. Furthermore, whilst we recognise that the use of advanced wireless technologies is necessary for a successful broadband policy a usefully supportive frequency policy must aim for an efficient, balanced, demand-driven range of Internationally harmonised frequency bands. **In our view, the reallocation of the 700 MHz band to mobile communication would be neither efficient nor would it lead to an affordable solution to the problem. Rather, there are other spectrum assets already held and / or higher frequencies that would better suit the market’s requirements.**

To this end, we believe that further displacement of terrestrial broadcasting services out of the sub-1GHz band would lead to regulatory failure as additional low frequency spectrum will not deliver upon high bandwidth applications such as video content to support mass market demand. These requirements are always better served by high-capacity networking technologies such as fibre, cable, and of course terrestrial broadcasting, figure 3 demonstrates that the amount of data consumed by EU households from a SD video stream on DTT in one year dwarfs the total Global mobile data traffic predicted by Cisco.

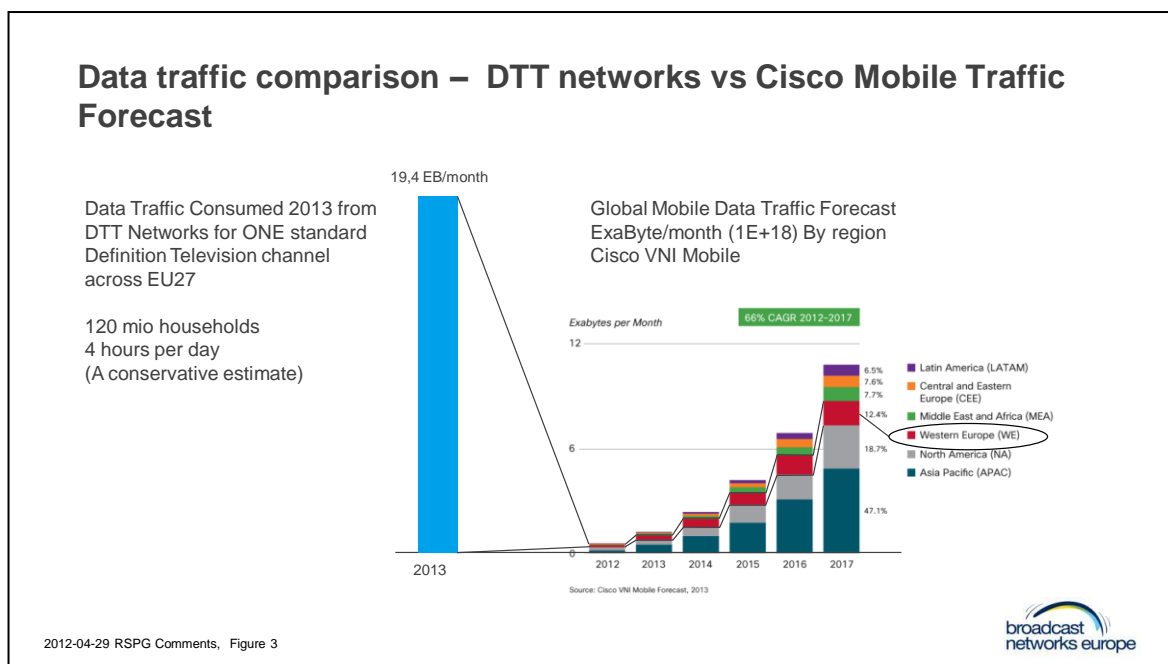


Figure 3 Comparison of DTT Data Consumption for EU27 Countries vs Total Global Mobile Data Traffic

Section VII

Converged services / networks are being considered as a means to potentially improve spectrum efficiency and justify consideration of redefining a strategy for the whole UHF band, but so far no description of them is known, and hence it is difficult to assess the possible benefits / drawbacks of such a concept. This observation is also applicable to Recommendation 1 and Annex 1(see below).

In addition, whilst Satellite and Wi-Fi solutions have been identified as approaches to cope with the expansion in mobile data traffic. There is also scope for broadcast technologies to contribute(e.g. Broadcast-to-Mobile B2M developments by TDF in France), which is an ideal approach when the same content has to be delivered to many consumers.

BNE also observes that the question of asymmetry of data traffic is quite well considered in the analysis, but this does not result in any obvious recommendations from the draft Opinion. Perhaps due consideration in Europe should be given to a downlink option, to this end considerable effort has been put into the potential to use spectrum at 1.4 GHz for supplemental downlink purposes⁸. This should be included as a sixth item for consideration against the second recommendation.
Section IX

The 700 MHz band

There is no reference to the anticipated LTE deployments in the 800 MHz and 2.6 GHz bands. At a moment when some Member States are requesting derogations to allow delay to the availability of the 800 MHz band it seems odd to be pursuing the 700 MHz band in such an aggressive way. It is too early to prove whether the 800 MHz and 2.6 GHz spectrum has made a meaningful contribution to the need to deliver mobile data traffic to judge whether a clearance of the 700 MHz band is necessary and / or appropriate in Europe.

Consequently, taking into account that the medium term objective of the 1200 MHz has already been met and in light of the observations that have been made in this response to the Draft Opinion we propose to change the status of the 700 MHz band for wireless broadband in Annex 1 from “Medium term potential” to “Possibly in very long timeframe”.

4. Comments on the recommendations

Recommendation 2

As a result of the above comments related to section I, the benefits of technology refresh to legacy GSM / EDGE services should be prioritised as part of the strategic plan and included as a fifth item against the RSPG’s 2nd recommendation

As a result of the comments above related to section VII, we encourage due consideration be given to the asymmetry of data traffic and this should be included as a sixth item against Recommendation 2.

Recommendation 3

We emphasise the importance of a detailed and rigorous Cost-Benefit Analysis taking into consideration the full Economic, Social and Political impact on the broadcast industry as well as consumers of such a radical departure from the existing model.

⁸ Closing the spectrum gap, A supplemental downlink at 1.4 GHz might be an answer,
http://www.plumconsulting.co.uk/pdfs/Plum_September2011_Closing_the_spectrum_gap.pdf

Recommendation 4

Before the RSPG gives far reaching recommendations on the use of the 700 MHz band and migration of (the DTT) services to new technologies we think that the Draft Opinion should take due consideration of the widespread use of DTT by European Consumers and the full economic impact of the DTT platforms. DTT will evolve both technically and commercially and a strategy for innovation, growth and competition should have as much priority as currently being given to wireless broadband. To mandate certain technologies may also prove counterproductive as technology develops rapidly potentially making a regulatory decision today a burden tomorrow. We believe that the industry / market should always take the lead when it comes to technology migration.

We welcome the proposal to develop a clear EU policy that results in new consumer equipment being designed to minimize the risk of interference from adjacent services in order to enhance spectrum efficiency, but this does not address the hundreds of millions of legacy devices on which consumers depend. Further, equal effort should be invested in ensuring that mobile devices and mobile base stations are not emitting interfering signals outside their assigned spectrum alongside the work being undertaken to develop TV receivers that are better at suppressing interference. To have mobile wireless services and DTT operating in adjacent frequency bands with limited frequency separation requires that both services share the burden in a balanced and realistic way to deal with the interference issues.

5. Comments related to Annex 1 and 2

As a consequence of our comments in section VII and IX, we propose to change the "Potential for Wireless BB" for the 694-790 MHz band in Annex 1 from "Medium term potential (>2015)" to "Possibly in very long timeframe", i.e. from blue to orange.

Furthermore, in Annex 2, the 470-694MHz band has been identified as a possible long term option for Wireless Broadband services subject to convergence between wireless broadband and broadcasting services, even though the notion of convergence has neither been substantiated nor demonstrated to be practical. Further, and as noted earlier, a number of Administrations have indicated that the UHF band should be retained for DTT when responding to previous ITU and RSPG questionnaires. Also the UK regulator Ofcom has recently stated that the 470-694MHz frequency range in particular will be relevant and necessary for DTT services in the UK until 2030 and beyond. Consequently this band should appear in the greyish light blue colour meaning "*Limited or None*" in Annex 1. Reference to this frequency band should as a consequence be removed from Annex 2.

6. Conclusions

To date, insufficient prominence has been given by the European Commission and the RSPG of the role that Europe's DTT services already play in delivering against the 'Digital Agenda' and the enhanced risk that it is under due to the ongoing assault on the spectrum on which it depends to serve European citizens. We believe that as a result of the RSPG's assessment Europe's DTT platforms should be afforded the following;

- Certainty over spectrum rights to sustain investment and innovation supporting the European consumers' commitment to the platform centred on a core free to air service and resulting enhanced competition with other platforms.
- Technical enhancements, e.g. DVB-T2 to be part of a co-ordinated strategy for innovation, growth and competition not just as a means of further reducing the spectrum utilized by DTT.

Finally, the case for more UHF spectrum in Europe for mobile broadband is not yet proven. The 800 MHz reallocation is ongoing with little evidence to date of its contribution. More time should be given to take an informed and rational decision on the need for more sub 1 GHz spectrum. Furthermore, recognising recent adjustments to mobile data traffic growth forecasts that indicate data traffic

growth on Mobile Broadband Networks is linear rather than exponential, it is absolutely the right time for the RSPG to be considering the strategic issues raised.

We therefore urge the RSPG and the European Commission as a result of this process to support the long term sustainability and viability of terrestrial broadcasting by securing that the 470-694 MHz band remains allocated only to broadcasting on a primary basis in Europe and hence should NOT be considered a candidate band for IMT services in Europe.

Appendix. Illustrations

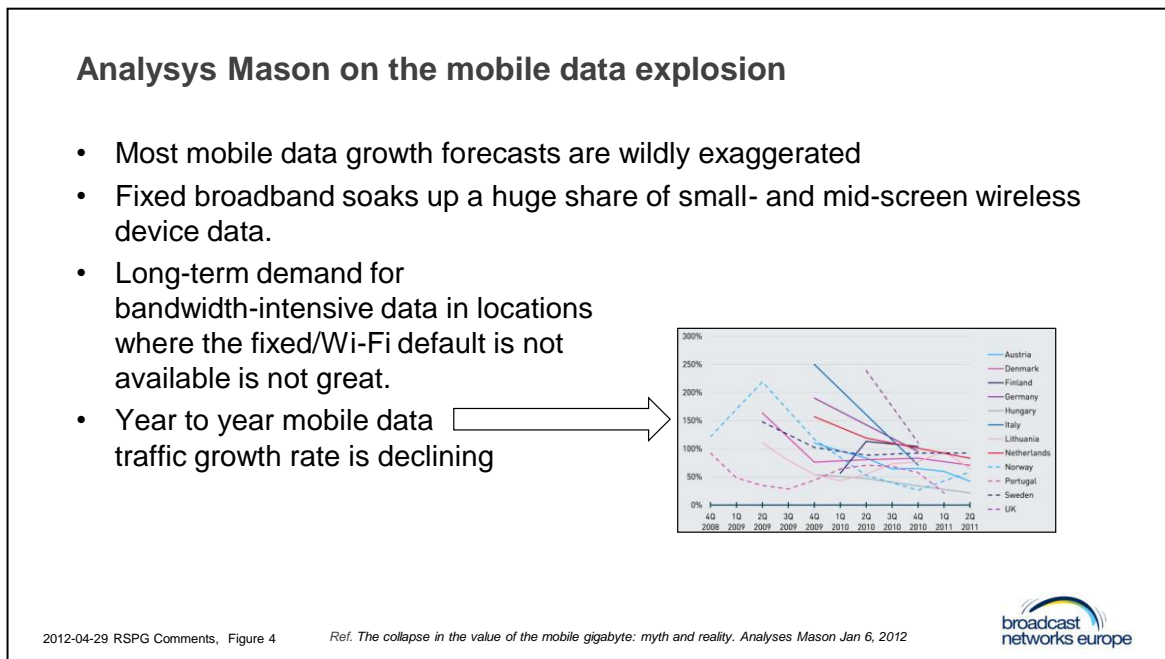


Figure 4

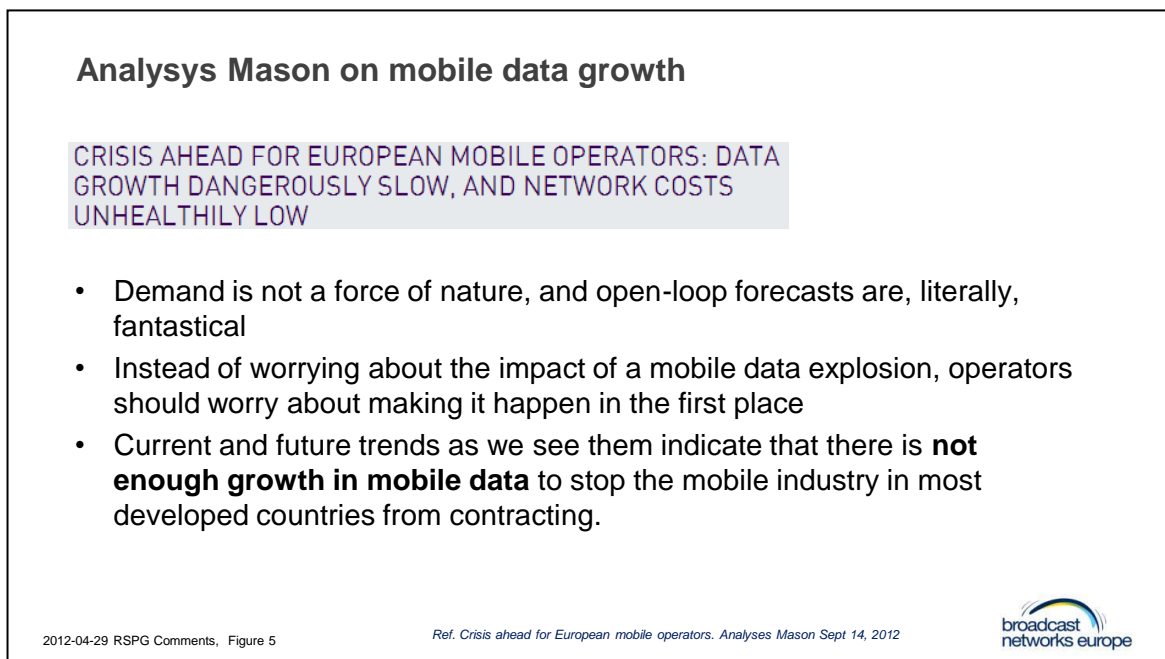


Figure 5

DTT Networks



- Cost efficient
- Spectrum efficient
- Reliable

0,1 – 2 € per household per month to distribute up to 60 TV channels 24/7 with high Quality of Service

Distribution cost per channel $\approx 0,01\text{€}$ per household per month

2012-04-29 RSPG Comments, Figure 6

Figure 6