

Radio Spectrum Policy Group Consultation

British Entertainment Industry Radio Group (BEIRG)

Draft RSPG Opinion on a long-term strategy on the future use of the UHF band (470-790 MHz) in the European Union

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Executive Summary

- BEIRG welcomes the fact that the RSPG is in favour of keeping the 470 – 694 MHz band for audiovisual content distribution.
- However, BEIRG expresses disappointment at the decision to support the harmonised reallocation of the 700 MHz band.

- BEIRG believes that the PMSE industry is more critically dependent on the favourable properties of the 700 MHz band than MNOs, who can and do operate at much higher frequencies.
- BEIRG suggests that the forecasts of mobile demand are unreliable and exaggerated, meaning that any policy decisions based on this data presents a serious risk.
- BEIRG asks that the RSPG prioritises the allocation of clean, dedicated spectrum to the PMSE industry, and emphasises the need for this to be completed before the 700 MHz frequency band is reallocated to the mobile sector.
- BEIRG welcomes the RSPG's promotion of harmonisation, but suggests that this should be put in place for the PMSE sector as well as MNOs.
- BEIRG is disappointed with the RSPG's suggestion that the PMSE sector should improve the efficiency of its working practice. The PMSE sector currently strives for best practice in all aspects of its work and should be recognised as doing such.
- In fact, BEIRG suggests that the mobile industry's working practice is far from efficient and recommends that MNOs are made to put their current spectrum holdings to better use before being allowed to purchase more spectrum.
- BEIRG asks that full compensation be provided for affected PMSE users, access to alternative spectrum should be granted to PMSE, creating a viable transition period for the PMSE sector (as was the case with the 800 MHz band clearance process)

Reallocation of the 700MHz frequency band

BEIRG welcomes the news that the RSPG is in favour of keeping the 470 – 694 MHz band for audiovisual content distribution, and would augment the declaration by adding specific reference to the PMSE sector. However, BEIRG is disappointed with the RSPG's support for the reallocation of the 700 MHz band; such a move will seriously damage the programme making and special events (PMSE¹) sector.

The economic and social importance of PMSE, and the creative industries which rely on it, is growing. In the UK the creative industries are currently responsible for 1.5 million jobs, and contribute nearly £72 billion annually to the UK economy². PMSE services contribute significantly to the economic, cultural and social wellbeing of Europe. For example, London theatres, which use PMSE equipment to produce much of their content, attract visitors from all over Britain and tourists from across the world. Including downstream revenue such as merchandise, the estimated annual economic impact of London theatres is £1.5 billion.

¹ Programme making and special events includes audio applications for Services Ancillary to Broadcast/Production (SAP/SAB). Throughout this document, the field will be referred to as PMSE.

² <https://www.gov.uk/government/news/creative-industries-worth-8million-an-hour-to-uk-economy>

Similarly, music festivals and live music concerts also contribute a significant amount to the British, and the international, economy.

Without sufficient access to spectrum, the PMSE sector's ability to produce content for consumers will be severely hindered. It is essential to recognise that any impingement on PMSE usage poses a serious threat to the revenue generation of this sector. Industry users will be directly affected and face a huge potential loss of earnings and consumer reputation. In any production **uninterrupted, high quality** audio is absolutely critical. Consequently, any interference experienced that causes a degradation of audio quality has severe repercussions for both the production and the audience alike. Therefore, new services need to recognise, respect and co-exist with PMSE users, as well as to make the most of the spectrum that they have, to ensure fair usage for all.

Unlike other technologies, wireless microphones do not have the capability to move to platforms other than radio spectrum. Whereas currently terrestrial television services may potentially be able to be broadcast online in the longer-term, PMSE equipment cannot function on any platform other than clean, interference-free spectrum. Currently there is only a limited pool of PMSE equipment that operates outside the UHF spectrum; the UHF bands offer the largest quantity of contiguous, good quality spectrum required for large professional events. This is not the case for other "usable" blocks of spectrum like 1.8GHz, 2.4GHz, or even 5GHz, for which some manufacturers make a small amount of equipment. Furthermore, interference from Digital Terrestrial Television (DTT) in the UHF bands is predictable and can be accounted for, while in other parts of spectrum where radio mics can operate, PMSE users must share spectrum with license exempt devices and find that access can therefore be much more unreliable and of inconsistent quality.

In addition, BEIRG remains unconvinced of the high rate of future mobile data demand put forward by MNOs. The European Broadcasting Union believes that current models offered by ITU-R SG 5D overestimate mobile traffic density in 2020 by a magnitude of two orders - a factor of one hundred³. Instead, the website CBROnline recently reported that research from Goldman Sachs has suggested that WiFi will become the dominant wireless access technology for the Internet of Things (IoT). Goldman Sachs reported that 70% of respondents to a survey by VDC Research stated that WiFi would be the dominant technology⁴. CBROnline also reported, in May, comments from Neul that 4G technologies such as LTE will struggle to play a meaningful role in the IoT⁵. These assessments reveal the vast uncertainty surrounding predictions of future uses of technology such as mobile broadband and demonstrate the risk of using such data to support the sale of spectrum to the mobile sector.

While some predictions indicate that demand for mobile data will increase based on current usages, they do not reflect the consumer's willingness to pay for additional data. Nor do they recognise the fact that the content for which consumers need mobile data is very often created by PMSE users. Any damage to the PMSE sector will inevitably reduce the quantity and quality of the content consumed over mobile data, thus potentially reducing data demand itself.

³ European Broadcasting Union, Spectrum Factsheet, <http://www3.ebu.ch/files/live/sites/ebu/files/Knowledge/Publication%20Library/Fact%20sheets/Fact%20sheet%20-%202014-07%20Spectrum.pdf>, (accessed 23rd July 2014)

⁴ CBROnline, "Wi-Fi, Not Cellular, To Lay The Foundation For The Internet Of Things", <http://www.cbronline.com/news/mobile-and-tablets/wi-fi-not-cellular-to-lay-the-foundation-for-the-internet-of-things-4307312> (accessed 23rd July 2014)

⁵ CBROnline, "Internet of Things can't be built on LTE", <http://www.cbronline.com/news/internet-of-things-cant-be-built-on-lte-4263590> (accessed 23rd July 2014)

While BEIRG recognises that mobile broadband may bring benefits to MNOs and consumers in the future, this should not be at cost to other industries reliant on spectrum, such as PMSE. Spectrum is a limited resource and BEIRG asks the RSPG to commit to the protection of incumbent users as well as new technology.

Incumbent Users

BEIRG welcomes the fact that the RSPG accepts the vulnerability of PMSE users and the ‘detrimental impact’ which further reallocation of spectrum will instigate. Wireless production tools are key to the success of projects in many sectors, but the disparate nature of the PMSE industry means that it does not receive the same attention as MNOs; BEIRG urges the RSPG to take note of all spectrum users. The loss of the 700 MHz band in Europe will negatively affect the entertainment industry unless appropriate mitigating steps are taken; the RSPG should recognise such problems as a warning to the rest of Europe.

Alternative Spectrum and Harmonisation

The opinion states that there ‘could be a need to identify alternative spectrum’ for PMSE users, but this is a gross oversimplification. The importance of providing a sufficient quantity and quality of alternative spectrum in which PMSE users can operate cannot be overstated. Without access to dedicated, clean spectrum, the PMSE sector as we know it will no longer be able to function.

A Study by the German Federal Network Agency in October 2008⁶ identified that 96 MHz of spectrum was the minimum requirement for PMSE audio equipment to operate productions on a daily basis. This study was carried out in an urban area, and took into consideration the operation of PMSE systems in close proximity to each other. Both practical application and the report show that at least 96 MHz is required for each of these locations to operate PMSE services at the current standard of production and without interference or difficulty. The UK is a heavy user of PMSE equipment, meaning that these figures are even more worrying for those who operate there; at each performance in the West End there are over 1000 pieces of wireless PMSE equipment in use across all venues. At the same time, news crews and other content producers are also operating in this area, requiring further spectrum access. Furthermore, this study did not include special events, such as royal occasions, national and international political gatherings and conferences, VIP visits, elections, large open air events, national and international sports events, religiously motivated meetings, parades and more – all of which rely on PMSE equipment.

Until alternative spectrum is finalised, PMSE manufacturers cannot begin research and development into new equipment designed to work at these alternative frequencies. There is, obviously, a time lag between spectrum being identified and suitable equipment being made available. The PMSE sector requires a period of years between spectrum access being allocated and migration in order for suitable equipment to reach the market. This raises the prospect of there being a period of time during which PMSE users have access to a new set of frequencies, but not to equipment which operates at those frequencies. Manufacturers will not produce suitable equipment capable of tuning to any alternative bands until those alternative bands are clearly identified and long-term access is guaranteed.

⁶ <http://www.apwpt.org/downloads/reportonthefrequencyresourcerequirementsofpwms.pdf>

BEIRG welcomes the support given in the opinion to harmonisation across Europe. Many events which rely on PMSE services involve touring around Europe and so it is crucial that the alternative spectrum allocated to PMSE is harmonised across Europe. PMSE equipment is designed to work within a single frequency band, meaning that, if countries across Europe allow PMSE to work in different bands, touring companies will have to purchase several versions of the same equipment to put on a single show. This is clearly economically unviable and would lead to a significant decrease in the number of shows touring Europe. BEIRG urges the RSPG to promote harmonisation of alternative for PMSE use, as well as the 700 MHz band.

BEIRG is currently working with the UK regulator Ofcom to identify alternative spectrum for PMSE use; announcement of a final decision is projected for 2015. BEIRG recognises that the provision of alternative frequency bands is largely a national issue, but asks the RSPG to follow the progress made by Ofcom and, if appropriate, to encourage other countries to follow their example. Engaging with the PMSE sector is key to securing a successful future for the creative industries in Europe.

Best Practice

BEIRG does not accept the RSPG's assertion that a solution for the PMSE sector is for it to improve the efficiency with which it uses spectrum. The PMSE sector is constantly working to make its equipment and practices as streamlined and efficient as possible, in no small part because of the limited spectrum which it has had to deal with in the past. BEIRG asks the RSPG to consider the suggestion that the working practices of MNOs should be scrutinised in greater detail, and that their efficiency, rather than that of the PMSE sector, should be called into question. The past actions of extending mobile broadband spectrum access, without supporting or demanding the reuse of existing resources, have not encouraged sufficient efficiency amongst the mobile telephone industry. Whilst PMSE is an efficient user of spectrum, able to utilise interleaved spectrum and to operate alongside other users such as DTT, mobile telephone technology is, at present, not and is unable to coexist with other users.

Additional spectrum should only be allocated for use by MNOs once they have shown that they have made efficient use of their considerable existing spectrum holdings and their need for additional spectrum has been confirmed by critical, independent analysis. Currently, BEIRG does not believe that MNOs have made a convincing case in this regard. Much more efficient and cost-effective use could be made of this spectrum, and it is therefore imperative that mobile telephone companies make the most of their large spectrum holdings, as meeting any likely future demand will be greatly dependent on this.

The increasing complexity of handsets has already led to a steady decline in mobile handset radio performance, which in turn leads to an increase in the required number of base stations to maintain network coverage⁷. The addition of further complexity to mobile handsets (and/or other mobile network user equipment such as dongles and tablet computers) will not promote spectral efficiency. BEIRG believes that MNOs should be encouraged to exclude poor performing handsets from their networks.

Mobile users already offload onto Wi-Fi to make voice calls and to send and receive data in an already overloaded SRD Band. As a more efficient, reliable and better quality means of data transfer, this raises the

⁷ Eurexcm Engineering, *Study for the European Commission – Enterprise and Industry Directorate General: Technical support relating to performance of antennas of mobile phones, Final Report*, 28 January 2014

question of how much more spectrum the mobile community actually needs in future. The future may see most consumers offloading services onto Wi-Fi, as a preference to mobile broadband, especially with increasing amounts of people working from home. Use of Wi-Fi could allow for a much larger capacity and faster throughput of data. This offloading of voice calls and data is not accurately reflected in predictions for future mobile data use.

In light of the above, BEIRG urges the RSPG to prioritise the search for alternative spectrum over the sale of existing bands to MNOs. If the latter is completed before the former it will be too late for the PMSE sector, while MNOs are already in possession of more spectrum than is necessary for their industry.

Compensation

BEIRG also asks the RSPG to give further consideration to the issue of compensation for those incumbent users forced out of frequency bands. The opinion states that the 'mechanism of possible compensation is a national issue', and, while this is true, it is not enough for the RSPG to encourage countries to give advanced warning about reallocation. BEIRG asks the RSPG to inform countries about the necessity of compensating users; without financial support, sectors will not be able to withstand the spectrum reallocation. Without external pressure, BEIRG remains unconvinced that individual nations will provide enough compensation and, therefore, the economic stability which has been missing from the PMSE sector since the Digital Dividend Review.

For example, as a consequence of the UK's change in policy allowing PMSE services in the 600 MHz band, many PMSE operators reinvested in PMSE equipment in the 700 MHz band following the clearance of the 800 MHz band. These users will be penalised for equipment investment decisions which, at the time, were made in good faith. The majority of recent professional equipment sales have been in the 700 MHz band. Being allowed only ten years of use out of new equipment, before new purchases must be made as a result of spectrum clearance is not acceptable for the PMSE sector; the industry typically gets between fifteen and twenty years of use out of professional equipment.

Any clearance of the 700 MHz band will lead to PMSE equipment that operates solely in this band being scrapped. In addition, any equipment operating between 470-694 MHz may face potential abandonment as a consequence of the subsequent DTT replan. Our industry cannot afford this uncertainty, and faces declining sales and a lack of confidence as a result. None of these identified costs should be taken lightly as part of a decision on 700 MHz, in particular those that outline the requirement for additional expenditure from consumers and PMSE users to replace equipment, and the associated upheaval and harm this will cause to our industry.

Conclusion

BEIRG asks the RSPG to do more to protect the vulnerable incumbent users of spectrum. Although some ideas expressed in the opinion hint at recognition of the problems facing the PMSE industry in light of the reallocation of the 700 MHz band, BEIRG believes that the timeframe and attitude set out by the RSPG strongly favours MNOs. If greater attention is not paid to the need to identify, clean, harmonised, alternative spectrum

and provide compensation for PMSE users, the creative industries across Europe will face severe disruption without any hope of support.

British Entertainment Industry Radio Group

The British Entertainment Industry Radio Group (BEIRG) is an independent, not-for-profit organisation that works for the benefit of all those who produce, distribute and ultimately consume content made using radio spectrum in the UK. Venues and productions that depend on radio spectrum include TV, film, sport, theatre, churches, schools, live music, newsgathering, political and corporate events, and many others. BEIRG campaigns for the maintenance of 'Programme Making and Special Events' (PMSE) access to sufficient quantity of interference-free spectrum for use by wireless production tools such as wireless microphones and wireless in-ear monitor (IEM) systems.

As well as being vital in producing live content, wireless PMSE technologies play a key role in helping to improve security and safety levels within the entertainment industry and other sectors. Their benefits include improving the management of electrical safety, the reduction of noise levels, the development of safety in communications and reducing trip hazards as well as providing an essential tool for the security orientated services. Wireless equipment and the spectrum it operates in are now crucial to the British entertainment industry.

BEIRG is a member of the Association of Professional Wireless Production Technologies (APWPT)⁸, which promotes on an international level the efficient and demand-driven provision and use of production frequencies for professional event productions, as well as safeguarding such production frequencies for the users on the long run.

⁸ <http://www.apwpt.org/>