

Ofcom Consultation

British Entertainment Industry Radio Group (BEIRG)

UHF and VHF Spectrum Planning Response

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UHF and VHF Spectrum Planning

British Entertainment Industry Radio Group Response

Executive Summary

The British Entertainment Industry Radio Group (BEIRG) has a number of concerns relating to Ofcom's planned UHF/VHF Strategy, as set out in the consultation response below. It is critical that the Programme Making and Special Events (PMSE) sector is recognised and supported in any future spectrum planning.

Demand for spectrum in the UK is extremely high, and growing. Upwards of 90,000 requests for PMSE spectrum access are made to the licensing band manager in the UK each year. Any changes to spectrum allocation which affects the ability of these industries to operate, including shared access, risks diminishing their contribution to society and reducing their capability to provide a range of benefits to consumers. BEIRG believes that Ofcom has a responsibility to the PMSE industry to ensure that it does not suffer interference or clearance as a consequence of any new mobile services.

- Ofcom's proposed UHF and VHF spectrum planning model must fully recognise and support the requirements of PMSE.
- Incumbent users of spectrum, especially PMSE, which has no alternative spectrum to move to in order to meet demand, must be favoured over new services as part of a new spectrum planning model.
- BEIRG believes that telecommunications companies must be encouraged to farm their already held spectrum more effectively, to help reduce demand for spectrum.
- Existing spectrum used by PMSE must be protected, and the industry should be further supported through an allocation of a permanent home of at least 96 MHz for PMSE, free from shared use with WSDs, as protection from any future clearances.
- Any changes to spectrum allocation which will affect the ability of PMSE to operate risks diminishing its contribution to society, and will reduce its capability to provide a range of benefits to consumers.
- If PMSE is moved once more, Ofcom needs to take into account the cost of PMSE equipment that will be lost as part of future clearances under a new spectrum management plan.
- An associated compensation scheme needs to be designed to alleviate this, in the event that another reallocation occurs.
- There is still a need to investigate further the potential effect that WSDs have on interference levels amongst other users, to take into account as part of future spectrum management and planning.
- Until this is achieved further WSDs should not be introduced to spectrum shared with PMSE.

Future UHF/VHF Planning

BEIRG is not confident that any of Ofcom's proposed UHF and VHF spectrum planning models will fully recognise and support the requirements of PMSE. It is critical that Ofcom take into account the needs of the PMSE sector as part of its UHF and VHF spectrum policy planning.

BEIRG does recognise that mobile broadband and other services may bring some benefits to consumers in the future, and also recognises the ever-increasing demand for spectrum. However, the introduction of new UHF/VHF services must not result in future spectrum management and frequency planning that excludes existing industries reliant on spectrum, such as PMSE, and fails to recognise the vital role they play in UK content production. Whilst BEIRG is supportive of allowing consumers increased access to broadband, we do not believe that the only means of delivering this is through altering UK spectrum allocations to allow for more spectrum to be offered to mobile services, nor is this the most cost-effective solution. Ofcom must ensure it first considers alternative delivery methods and fully weighs up the various opportunities and technologies to meet the increased demand for mobile services and deliver increased broadband access (for example, Wi-Fi connected to fibre optic cables), before rushing to allocate greater volumes of spectrum to mobile network operators to the disadvantage of citizens and consumers.

Ofcom must plan for the long term across all industry sectors. Under a new spectrum planning model, incumbent users of this spectrum, including PMSE, which have no alternative spectrum to move to in order to meet demand, should be favoured ahead of new mobile services where alternative spectrum management and refarming can ensure adequate spectrum access for these services.

PMSE access to spectrum is already extremely limited, with large productions already facing difficulties with production planning. There is therefore a need for new services and future spectrum planning to recognise, respect and ensure that other users can co-exist with PMSE users. New and existing users must make the most of the spectrum that they already have, to ensure fair usage for all. Consequently, BEIRG is in favour of encouraging telecommunications companies to farm their already held spectrum more effectively, allowing better use of UHF bands and relieving the pressure on efficient sub-1 GHz spectrum users, such as PMSE. The past actions of extending mobile broadband spectrum access, over supporting the reuse of existing resources, did not encourage 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. BEIRG believes that it should be possible for mobile companies to ensure adequate mobile broadband coverage with the level of spectrum access that they currently enjoy. Additional spectrum allocation for mobile broadband should therefore not be needed at this time.

Therefore, any work to re-farm and increase the efficiency of spectrum used for mobile telecommunications as opposed to further auctions of additional spectrum, as part of future planning, must be welcomed and encouraged as an alternative to further clearances. Ofcom should look to model the outcome of a refarming effort by the mobile companies fully, and ensure they comply with this to ensure the greatest possible level of spectral

efficiency, before finalising a new planning model, and going ahead with the work plan and timeframe identified in this consultation.

It should be noted once again that BEIRG is not opposed to improved communications technology and progress in these fields, but it is important that these do not come at the expense of existing industries which already provide a valuable and essential service to citizens and consumers.

PMSE Requirements

PMSE access to clean, interference free spectrum is vital. The vast majority of PMSE operations lay currently between 470-798 MHz, where BEIRG believes it must now remain to ensure the PMSE industry is protected adequately. It should also be remembered that the daily use of, and reliability on, PMSE equipment by the creative industries helps to contribute billions to the UK economy annually. Ofcom should not consider any reduction in PMSE's spectrum access for the sake of increased spectrum availability for mobile operators. To ensure guaranteed PMSE operation without interference, BEIRG would advise allocating a least 96 MHz to PMSE, free from shared use with WSDs, as protection from any future clearances. This would require a minimum of two 8MHz band buffers to ensure a guaranteed level of quality and non-interference.

Further to this, BEIRG would like to see the 1427-1527 MHz band opened up fully for use by PMSE, to help meet rising demand from our own sector, and to ensure that high-quality content production can continue. This would aid the PMSE sector by helping to ease future issues of spectrum scarcity. The band should be made available on a geographic basis for PMSE and look to make up for the PMSE spectrum already lost to mobile services. However, it should be noted that this would not be considered a complete solution for PMSE, but welcome assistance and a step in the right direction for PMSE support.

Unlike other technologies, wireless microphones do not have the capability to move to platforms other than radio spectrum. Whereas television broadcasts 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, and this must be protected.

PMSE has long been a very efficient user of spectrum. Users operate within TV interleaved spectrum (white space) alongside Digital Terrestrial Television (DTT) broadcasters, primarily in 600 MHz and 700 MHz, utilising these gaps to make as effective and efficient use of this interleaved spectrum as possible. In other parts of spectrum where radio mics can operate, PMSE users must share spectrum with license exempt devices and find that access can be much more unreliable and of a poorer quality. Interference from TV in the UHF bands is predictable and can be accounted for as part of PMSEs sharing of interleaved spectrum with DTT. As a result, interference is minimised and the maximum possible benefit to users and consumers is obtained. The PMSE industry has operated successfully under this model for many years. With such a satisfactory system already in place, BEIRG believes that it would

be unwise to change it excessively, and certainly not for the purpose of introducing further new services.

Impacts

The impact of allocating more UHF spectrum to mobile broadband on those sectors reliant on PMSE will far outweigh any benefits to citizens and consumers. PMSE, and the creative industries which rely on it, are a growing sector, and are currently responsible for 1.5 million jobs and a contribution of £36 billion annually to the British economy, as estimated by the Department for Culture, Media and Sport¹. Including downstream revenue such as merchandise, the estimated economic impact is £2 billion. Any changes to spectrum allocation which will affect the ability of these industries to operate risk diminishing their contribution to society, and will reduce their capability to provide a range of benefits to consumers.

Consumers will be faced with the cost of replacing DTT equipment so soon after the Digital Switchover, to ensure their equipment can still operate. Unlike during Digital Switchover, which brought with it access to Freeview channels and stronger transmission signals in many areas, consumers will not see any marked benefit in paying these costs, which will not bring any additional services with them. Furthermore, Ofcom also needs to consider the potential social and cultural costs to consumers, in instances where PMSE is unable to put on shows, concerts and other events as a consequence of spectrum clearance. This cost will be hard to quantify. Spectrum clearance can also cause costs to small organisations, such as schools and churches, who use PMSE on a smaller scale and who will be forced to replace redundant equipment.

What is essential for PMSE users is continuity of access to a sufficient quantity of clean, interference free spectrum. With the 800MHz band having been allocated to mobile companies; available spectrum is becoming ever scarcer as demand for wireless technology continues to increase. PMSE access to spectrum is already extremely limited, with large productions facing constrictions on the shows they can stage. There is therefore a need for new services to recognise, respect and co-exist with PMSE users, to ensure fair usage for all. Additionally, Ofcom must not do anything that will negate their ability to redress any shortfall in current or future spectrum availability for PMSE.

PMSE drives content production, the very same content that mobile broadband is designed to supply. Demand for PMSE spectrum must be assessed in a realistic way before any others are examined. If PMSE does not have sufficient access to spectrum, its capability to produce content will be severely hindered – even to the point where the industry will not be able to supply enough content for consumers to watch, ironically in some cases via broadband access. Content creation comes before content delivery. This fact should not be underestimated, or ignored.

¹ See <http://www.culture.gov.uk/images/research/Creative-Industries-Economic-Estimates-Report-2011-update.pdf>

Ofcom must also be aware of the potential for interference from any new mobile services or WSDs, which could adversely affect PMSE. Ofcom must continue to study the potential for interference and likely cost impacts before making decisions on the future UHF/VHF spectrum management. Future business security is vital for the PMSE industry, so stakeholders know where to invest and where they can be confident the sector will be unaffected by continuing upheavals in spectrum allocation.

Industry Engagement and PMSE

BEIRG generally does not believe that sufficient weighting is being given to the impacts of Ofcom's recent spectrum management and reallocation proposals on content production and technical delivery. Ofcom must closely engage with the PMSE industry to take into account fully the extent of any potential impacts that changes to UHF and VHF spectrum planning will have. BEIRG will continue to liaise with Ofcom and participate in its assessment of the PMSE industry to help facilitate this, and ensure Ofcom has a complete picture of the extent of PMSE equipment in operation on quantity of users in the UK.

BEIRG believes that PMSE cannot afford to be cleared from any further UHF spectrum at this time, without the guarantee of a long term home to which to migrate. Any such home must consist of an adequate quantity of dedicated, interference-free spectrum, and the industry must be made aware of any such plans with a sufficient level of warning to allow manufacturers time to produce new equipment appropriate for potential new PMSE channels. Accordingly, BEIRG calls on Ofcom to investigate as a matter of urgency the possibility of a long-term home for PMSE, allowing for stability in the industry, protection from future clearances and to guarantee the on-going viability of PMSE equipment. BEIRG thinks that the best solution to secure long-term benefits from UHF Bands IV and V would include exclusivity of spectrum use for PMSE (including no white space devices allowed access - at least in certain areas of Bands IV and V). Any future move to re-allocate spectrum usage in UHF Bands IV and V would be severely disruptive to an already hard-pressed PMSE industry. This is in the interest of neither citizens nor consumers, and BEIRG believes that Ofcom has a responsibility to protect the PMSE industry from any further disruption, or else to support the industry and ensure that it does not lose out from these changes.

For example, if the 700 MHz band were to be cleared of PMSE services, causing the PMSE industry to face another major upheaval not long after the 800 MHz clearance, it also is essential that a full compensation scheme is established alongside the identification of an adequate amount of alternative spectrum. Ofcom needs to take into account the cost of PMSE equipment that will be lost as part of any future clearances under new spectrum management plans, and any associated compensation scheme designed to alleviate this.

In the event that 700 MHz is cleared, all PMSE equipment that operates in this band will have to be scrapped. In addition, any equipment operating between 470-694 MHz may face potential abandonment as a consequence of the subsequent DTT re-plan. 80% of professional equipment sales recently have been in the 700 MHz band. The PMSE 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, or

any other band likely to impact on PMSE users. Further to this, Ofcom must bear in mind the requirement for additional expenditure from consumers to replace their existing equipment. To be truly effective, and to ensure future continuity of PMSE services, any compensation scheme will also need to take into account alternative frequency band allocations that can be dedicated to PMSE in the longer term.

The proposed re-plan of DTT under Ofcom's proposed clearance of 700 MHz will further reduce available spectrum for PMSE. It is vital for the continued operation of our sector that we are guaranteed clean, interference-free spectrum. In the event of any clearance and subsequent auctions, the introduction of enforced guard bands within 700 MHz at its lower end would go some way in alleviating the risk of interference. It is imperative that Ofcom work to ensure that spectrum is managed carefully and appropriate guard bands are provided within part of any new service allocations, and that these guard bands do not further encroach on PMSE spectrum.

It is also worth noting that within any re-plan of spectrum, PMSE access to contiguous bands of spectrum is important for flexibility as well as quality of PMSE productions. Regional variation in spectrum use causes changing requirements for PMSE which must adapt to local spectrum availability. Putting more pressure on PMSE through an ever-decreasing amount of spectrum will be highly damaging for the long-term benefits that could be gained from UHF Bands IV and V through good management. BEIRG therefore would call for a contiguous block of spectrum, such as Channels 35-38, to be reserved for dedicated PMSE use.

WSDs

Finally, there is still a need to further investigate the potential effect that WSDs have on interference levels amongst other users and to take this into account as part of future spectrum management and planning. BEIRG would welcome additional tests to fully understand the implications of allowing unlicensed WSDs to operate and the effect that this would have on other spectrum users, especially as PMSE could potential find itself operating in the same spectrum as WSDs in future. This must be taken into account by Ofcom as part of its future planning, to ensure all users have sufficient access to spectrum.

BEIRG believes that the deployment of WSDs into UHF spectrum has the potential to severely compromise PMSE's operating environment. Interference free spectrum is crucial to the successful operation of PMSE equipment. By allowing the deployment of White Space Devices into UHF spectrum, through shared access, an environment will be allowed to develop that permits increasing levels of interference to affect existing users of UHF spectrum far more frequently. Allowing more RF energy to radiate in the band will, inevitably, impact negatively on existing spectrum users. BEIRG therefore urges an extremely cautious approach to the deployment of WSDs and the introduction of shared access.

BEIRG is concerned that PMSE is still considered a consequential user that only receives intermittent access to white space within spectrum primarily reserved for DTT. It must be considered a fully-fledged incumbent user, which cannot be asked to cope with the impact

of additional users sharing their spectrum. If demand for PMSE or DTT exists, it must always take precedence and be served before WSDs or other proposed shared user requirements, in a similar fashion to the management necessitated by the London 2012 Olympics.

As far as the PMSE industry is concerned, all interference is potentially harmful and able to cause serious problems within our sector. PMSE equipment is used at the very front of the production chain; therefore any interference experienced by this equipment destroys not only the performance or event, but also any downstream revenue generation. For many PMSE users such as theatres, live TV broadcasts, live music and large political and industrial events, the presence of interference from unlicensed users can be disastrous, even if for only a short period of time. BEIRG urges Ofcom to work to mitigate all interference from WSDs and look to prevent any shared agreement that will impact on PMSE use. Until it can be clearly shown that existing PMSE and broadcast users of spectrum and consumers will be entirely protected from harmful interference or disruption brought about by shared use of TV white space, and a safe balance can be struck, further WSDs should not be introduced to shared spectrum.

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), 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.