British Entertainment Industry Radio Group (BEIRG)

Response to consultation 'Consultation and information on technical conditions for 800 MHz and 2.6 GHz spectrum and related matters'.

Date: August 2011

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Response

1. This is the British Entertainment Industry Radio Group's response to Ofcom's consultation on technical licence conditions for the auctions of the 800 MHz and 2.6Ghz spectrum. BEIRG is also responding to the consultation running parallel to this entitled 'Coexistence of new services in the 800MHz band with digital terrestrial television'.

2. Professional Programme Making and Special Events (PMSE) users rely extensively on the Interleaved UHF spectrum, or 'White Space', notably for major live events such as the recent Royal Wedding, but also routinely for touring theatre and live music, TV, corporate events and many other day-to-day activities. BEIRG is concerned that out-of-block emissions from LTE 800 base stations will render some interleaved spectrum below 790MHz unusable for PMSE due to interference.

3. TV channels that are theoretically available to professional PMSE users at various locations may in practice be rendered unusable due to out-of-block emissions. DTT is not the only service that needs to be protected from LTE interference and it is vital that a strict regulatory approach is adopted in order to protect PMSE use of the remaining interleaved spectrum. Any relaxation of out-of-block EIRP limits or increases in maximum permitted base station EIRP directly threatens the PMSE industry. We strongly urge Ofcom to adopt the most stringent emissions mask available and to resist any pressure to relax or remove controls on out-of-block emissions or to increase maximum LTE 800 base station EIRP above 59dBm.

4. Despite the major relocation of a considerable number of PMSE users from Channel 69 to Channel 38, many PMSE users have opted not to make the switch and instead opted to move to the licence free Channel 70. This avoids the expensive process of surrendering equipment in order to purchase new equipment for Channel 38 use, and is more suitable for low channel count users. Whilst some funding has been provided to PMSE users, this is only to cover approximately 55% of equipment cost, and this funding has not been made available to all users.

5. As Channels 69 and 70 are adjacent, the majority of equipment designed to tune to Channel 69 can also tune to Channel 70. Up until recently the official guidance has been for PMSE users who do not wish to buy new equipment for Channel 38 to move to Channel 70. This has been the advice featured on the Equiniti website in the original FAQs, and was only removed in May 2011. In answer to the question 'Where can I move to?' it was suggested that 863MHz – 865 MHz would be a suitable new home for low channel count users. BEIRG is aware that a significant number of PMSE users have since followed this advice and plan to operate in Channel 70.

6. BEIRG is now extremely concerned that potential harmful interference from the newly released 800MHz band will render Channel 70 unusable. The risk of interference to Channel 70 users is heightened by the fact that the likely new user of the 800MHz band will be mobile communications. PMSE equipment was never designed with the expectation that it would have to work in adjacent frequencies to LTE equipment, and will be unable to operate if there is any interference from these services. There are

many hundreds of thousands of pieces of Channel 70 legacy equipment in operation today. This equipment was bought in good faith with an expectation of a long usable lifespan.

7. The ERA report[1], and other investigations elsewhere, have clearly shown that there is a very real risk of interference between LTE UE and audio SRDs. As far as BEIRG is aware no investigation has yet been carried out on the effects of multiple LTE UE devices operating in the vicinity of SRDs - such as when an audience or congregation are present and one or more wireless microphones are in use. It seems likely that this would pose an even more serious risk of harmful interference than a single LTE UE device, since multiple mobile devices could be transmitting simultaneously contributing to receiver overload and increasing the cumulative level of out of band emissions in the adjacent SRD band.

8. At present there are many PMSE users who will be unaware that the Channel 69 equipment that they have retained and use in Channel 70 could be rendered redundant. If such users had been informed of this likely outcome earlier, then these users could have at least considered purchasing new equipment. Applications for the funding scheme are now closed. Ofcom must do all it can to prevent interference from the 800MHz band which could prevent these users from using their equipment. Having given advice through Equiniti to use this channel, there is an obligation to ensure this.

9. If protection from interference is not guaranteed, Ofcom must build in a procedure into the technical licence conditions for 800MHz which provides compensation for PMSE users who can no longer use Channel 70. Ofcom may wish to consider re-opening applications to the Channel 69 equipment funding process. This procedure should be clearly based on the principle that the polluter pays for any interference generated.

10. If interference from 800MHz LTE services is so strong that it renders Channel 70 unusable, then Ofcom must consider a scheme which both provides a new channel band for unlicenced PMSE use, as well as providing a compensation scheme to fund the cost of new equipment. Given the large number of domestic consumers with SRD equipment that operates in Channel 70, Ofcom has a duty to embark on a major awareness raising campaign to highlight this potential interference. Thousands of new Channel 70 systems are being sold every week, without warning being given that within a year they may be unusable. As with professional PMSE users, amateur users must be entitled to compensation for their equipment if Channel 70 is rendered unusable.

11. In the SRD report it is stated that because SRD's can potentially interfere with other SRD's the MFCN interference should be tolerated. **This is a totally specious argument**. The 863-870 MHz band has been carefully planned to be spectrum

[1] Investigation on the receiver characteristics of SRD equipment in the 863 – 870 MHz band, http://stakeholders.ofcom.org.uk/binaries/consultations/tlc/annexes/SRD-Study.pdf

efficient by CEPT in conjunction with ETSI SRD groups and has resulted in the band plan (a result of considerable compatibility testing by CEPT,ETSI and industry) separating disparate uses.

12. Since its identification in the Detailed Spectrum Investigations of the early 1990's very few cases of inter SRD interference have been reported to manufacturers. The stated cases of radio microphones interfering with a range of devices misses the main point that this never actually happens in practice. The risk of a 10 mW wireless microphone interfering with other SRD's is considerably lower than the risk posed by a many times more powerful LTE handset or dongle.

Consultation questions

Question 1: Do you have any comment on the proposal to apply the limits defined in Case A of Commission Decision 2010/267/EU for out-of-block emissions from base stations into all frequencies in the range 470 to 790 MHz, as set out in Table 4.4?

BEIRG has severe concerns that even Case A will not be sufficient to mitigate interference. Consequently, BEIRG would suggest reducing these figures by at least 3 dB.

Question 2: Do you have any comment on the proposal to set an in-block emission limit of 61dBm/(5 MHz) for base stations in the 800 MHz band?

BEIRG welcomes a limit lower than the maximum of 64 dBm/(5MHz) but believes that even this lower than maximum figure of 61dBm/(5MHz) will cause far more interference to many more users than is suggested by the figures and modelling work.

Ofcom's modelling was conducted at a presumed maximum base station power of 59 dBm/(5MHz). 61dBm/(5MHz) is obviously 2dB higher than the figure that was used for the modelling work. Therefore, it follows that the modelling work is invalid and needs to be re-assessed.

Question 3: Do you agree with the proposed conditions on antenna placement that would permit the use of the alternative block-edge mask for restricted unpaired blocks? If not, please explain your reasoning and your alternative proposals, bearing in mind the need to remain consistent with the framework provided in Commission Decision 2008/477/EC.

No comment.

Question 4: Meeting the conditions on the use of the alternative block edge mask for restricted TDD blocks would require certain licensees to share information about the locations of their base stations. Do you agree with this proposed approach?

Yes.

Question 5: We welcome comments on stakeholders' preference for the dedicated or hybrid options for low-power shared access as discussed above.

No comment.

Question 6: We welcome comments on the appropriate frequency placement for low-power spectrum blocks.

No comment.

Question 7: Do you agree with our proposed technical licence conditions for low-power access?

No comment.

Question 8: We welcome comments from stakeholders on the additional restrictions and technical measures we have outlined for the management of interference under the hybrid approach, and the technical licence conditions that would be necessary to implement them.

No comment.

Question 9: Do you agree that a Code of Practice on Engineering Coordination, as outlined, is the appropriate approach to manage the coexistence between low-power licensees?

No comment.

Question 10: Do you agree that we should proceed with the approach that terminal stations complying with the relevant technical parameters be exempted from the requirement for individual licensing?

No. They should all be licensed individually.

About BEIRG

BEIRG is a non-profit making organisation set up to represent users of radio spectrum in the Programme Making and Special Events (PMSE) sector. BEIRG's members are involved in the production of all areas of television content, at national, regional and local level.

The PMSE sector is a key component of the British entertainment industry which contributes at least £15 billion annually to the UK economy. The sector relies upon wireless equipment such as microphones, in-ear monitor systems, talk back and instrument systems. Over the last 50 years such technologies have largely been utilised in television and radio programming, however increasingly high levels of audio quality and ease of use has also led to their deployment across a much wider array of event production. Theatres, film, broadcasting and live sports events all rely on PMSE equipment for production of their content.

What is essential for PMSE users is that they are able to access clean, interference free spectrum. PMSE equipment operates at the forefront of the production chain and thus any interference will affect live content at source. If such interference is particularly severe then it can lead to shows, events or live broadcasts being cancelled. This would have serious repercussions, and in the shorter term, could result in the cancelation of shows and events. In the longer term, failure to address the PMSE industry's need for clean, interference free spectrum could result in a widespread reduction of the industry's ability to produce the quality live entertainment content for which the United Kingdom is renowned for worldwide.

Currently PMSE users have Channel 69 as a dedicated channel nationwide for their use. However, due to the clearance of the 800MHz band for sale, PMSE users are now being required to relocate from Channel 69 to Channel 38. From 2012 PMSE users will use Channel 38 as their new dedicated channel.

However it is critical to understand that professional PMSE use is in no way solely limited to Channel 38. In addition to this dedicated channel, PMSE users rely on access to the TV white spaces currently available on a regional basis. The clearance of the 800MHz band for new mobile services has seen a significant reduction in the volume of white space available for PMSE. These white spaces are heavily relied upon for the production of large-scale events.

It is essential that PMSE users, who have already seen degradation in the quantity of spectrum available for their industry, do not also suffer a reduction in the quality of remaining spectrum as a result of new mobile services.