

Additional comments:

This stakeholder is a member of BEIRG and fully supports the responses by BEIRG and the PMSE Pro User Group to this consultation. Anything contained in this response which is contradictory to BEIRG's or the PMSE Pro User Groups responses may be discarded and this stakeholders opinions can be considered the same as that of BEIRG and the PMSE Pro User Group.

Question 1: Do you agree that clearing DTT from channels 61 and 62 and PMSE from channel 69 to align the upper band of cleared spectrum in the UK with the emerging digital dividend in other European countries is likely to further the interests of citizens and consumers to the greatest extent?:

Ofcom needs to ensure that those cleared from the spectrum, whom Ofcom has agreed are valuable to citizens and consumers, are unaffected by the move financially and in terms of quality of service. This may require a greater degree of funding than estimated in 3.26 and this consultation should consider this eventuality. Ofcom has admitted that there is a risk that there will be reduced interleaved spectrum for DTT services and therefore PMSE stakeholders [A5.77]. This would affect current users financially and in terms of quality of service which Ofcom has a responsibility to prevent.

The details of the move, which Ofcom states are largely dependant on the auction and on international negotiations are too vague to allow an accurate answer on the likely value to citizens and consumers. As some important data regarding funding of the move are not yet available [3.30] [4.65], in turbulent financial conditions, there could be a negative benefit to citizens and consumers if funding is insufficient. Stating that 'plausible assumptions in relation to consumer demand for different possible uses of the spectrum' have been made is inappropriate for a consultation [A5.16]. Assumptions should not be made on a topic so important.

Question 2: Do you agree that the proposed DTT migration criteria are proportionate and appropriate? If not, please explain why and clearly identify any other criteria you believe should be adopted and why.:

Ofcom states that 'certain criteria relating to DTT coverage, DSO and existing users of the 800MHz band should be satisfied when clearing DTT from channel 61 and 62' [4.66]. The PMSE community constitutes an existing user of the 800MHz band. Though DTT migration has no direct effect on channel 69, the criteria for DTT migration are used later in this section as a basis for other decisions which do affect the PMSE community, as it is defined as part of the 800Hz band by Ofcom [1.7]. In 4.11, please add that 'existing authorised and planned users of channel 69 should not bear extra costs that must be reasonably be incurred in order to clear the spectrum'. Perhaps a more general approach could replace criterion two: 'existing authorised and planned users of the 800MHz band should not bear extra costs that must be reasonably be incurred in order to clear the spectrum'. This would also take the potential reduction of interleaved spectrum into account [A5.77]: Ofcom has stated that there is a possibility that there will be reduced interleaved spectrum for DTT

services and therefore PMSE stakeholders as a result of the migration. Ofcom has a duty to protect existing users of the spectrum and a reduction of available spectrum is not compatible with this duty.

Question 3: Do you have views on the options identified and our assessment of them? Do you believe there are other, superior options, and, if so, why? Do you agree that the hybrid option is most consistent with the DTT migration criteria?:

In paragraph A6.80 Ofcom states that in option D scenario 3 there is ‘no demand by mobile communications’ but that ‘through clearing channels 61 to 69 the value of the spectrum ... to mobile communications is raised’. How is it possible to clear channels which have already been cleared as dictated by the description of option D in A5.33? Ofcom has not provided a scenario to compare the variable of harmonised or un-harmonised use of the upper band, yet Ofcom makes several key decisions based on this comparison [e.g. A6.80]. Please provide the research to show the scale of the difference in merit of harmonised and un-harmonised spectrum in terms of mobile communications.

Ofcom is keen to address the possible interference by wireless microphones on adjacent services, but fails to address the reverse [3.24]. Any option which results in the presence of a high power services in channel 37 [4.38] and/or 39 may need to consider guard bands within these channels, to protect the PMSE users in channel 38. Ofcom’s commissioned report by Arqiva notes that channel 38 could ‘form a guard band between ch39 and any application in ch37’

[<http://www.ofcom.org.uk/consult/condocs/800mhz/arqiva.pdf>]. This is not acceptable, since this implies that interference from 37 and 39, though not reaching each other, would be harmful within channel 38.

I don’t think there are any alternatives to the options detailed by Ofcom but additions regarding guard bands need to be made to the consultation. Figure A6 should be updated to include the provision of this guard band. I think the hybrid option, with the addition of guard bands is most consistent with DTT migration criteria.

Question 4: Do you have views on the implementation-timing options identified and our assessment of them? Do you agree that DSO-integrated implementation is most consistent with the DTT migration criteria? If not, why not?:

There is a great risk in making important decisions about the use of certain sections of spectrum [as done in 3.17 and 3.18] when the auction could seriously affect the viability of the decisions.

There is also a risk in basing decisions on assumptions about the time taken to clear spectrum. Further research is needed on the time taken for PMSE to migrate from channel 69 to channel 38, with consideration of the time taken to re-band or replace all the equipment being affected by the whole DDR process. Consultation question 15 covers the time required to re-band equipment in channel 69 in more detail. A consultation is required with regard to the time taken to re-band all equipment in other channels affected by the DDR.

Table 3 in 4.48 is in a section supposedly referring only to moving DTT from channels 61 and 62 but the table also contains assumptions about the availability of

the whole 800MHz band without consideration for other users of the spectrum. In fact, at the end of this section, Ofcom states that ‘certain criteria relating to DTT coverage, DSO and existing users of the 800MHz band should be satisfied when clearing DTT from channel 61 and 62’ [4.66]. Channel 69 is defined as part of the 800MHz band by Ofcom [1.7].

Table 3 provides insufficient and inaccurate detail on how the whole band is to be cleared by 2014, in terms of the tasks facing the PMSE industry. For example, how this migration will be funded [3.30] [4.65] has yet to be addressed. The table needs amending to focus on when only channels 61 and 62 would be clear rather than the whole 800MHz band. If Ofcom makes the necessary amendments to show it is only referring to the dates by which time only channels 61 and 62 are likely to be clear, DSO-integrated implementation is most consistent with the DTT migration criteria. Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. In a previous consultation BEIRG stated that ‘Ofcom may claim that, based on 2005 PMSE spectrum demand (data gathered from the JFMG licensing database), there will be ‘broadly’ sufficient spectrum availability post-DSO to cater for the PMSE requirements in the vast majority of locations. However, this argument reflects Ofcom’s poor understanding of (1) the importance of the PMSE sector to citizens and consumers of the UK, (2) how the PMSE sector functions, (3) the inadequacies of the licensing/enforcement regime, (4) the uncertainty involved in the suggestion that DTT protection might be manipulated to ‘enlarge’ the white spaces, (5) the major limitations of new technologies when compared to analogue systems and (6) the fact that there are no short or medium-term alternatives for PMSE other than the use of UHF spectrum.’

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].

Ofcom continues to maintain that there will be sufficient spectrum to meet the needs of the PMSE community despite proof to the contrary from BEIRG [A5.83].

Question 5: Do you agree that a programme-control and -governance arrangement such as that outlined above is appropriate?:

No. These arrangements should not just be ‘outlined’ in this document. More details are necessary to provide better understanding of exactly what the ‘clear lines of accountability’ [4.55] are for each stage of clearing the 800MHz band. For example, who will be held accountable: if the finances to ensure the successful migration of PMSE are not available; insufficient spectrum is available for PMSE use; and if insufficient time is available for PMSE users to migrate to new spectrum? Please publish the ‘assessment of work peaks for DSO and clearing DTT from channels 61 and 62 (assuming integration with DSO)’ so that your stakeholders can see that the phasing of planning and engineering workloads is compatible.

Question 6: Do you agree that the four cost categories adequately capture the costs associated with clearing DTT from channels 61 and

62? Are there any costs that do not appear to have been accounted for in any of these categories?:

The four cost categories do not take into account the cost or timescale of moving PMSE from channel 69, though clearing the whole 800MHz band (rather than just 61 and 62) is mentioned several times in this section, and channel 69 is defined as part of the 800Hz band by Ofcom [1.7]. If Ofcom amends section 4, removing all references to the whole of the 800MHz band, the four cost categories will adequately capture the costs associated with clearing DTT from channels 61 and 62. Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. In A5.78 Ofcom states that the impact of A5.77 has been taken into account, but this has not happened for PMSE.

Question 7: Do you agree that our cost profile is a reasonable basis for planning the capital expenditure for clearing DTT from channels 61 and 62?:

The cost profile does not take into account the cost or timescale of moving PMSE from channel 69, though clearing the whole 800MHz band (rather than just 61 and 62) is mentioned several times in this section, and channel 69 is defined as part of the 800Hz band by Ofcom [1.7]. If Ofcom amends section 4, removing all references to the whole of the 800MHz band, the cost profile will be a reasonable basis for clearing DTT from channels 61 and 62. Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. In A5.78 Ofcom states that the impact of A5.77 has been taken into account, but this has not happened for PMSE. Ofcom can not decide on the cost profile for clearing DTT from channel 61 and 62 without taking this potential loss of spectrum into account.

Question 8: Do you agree that these are the most appropriate criteria to assess which spectrum is the best alternative to channel 69 for PMSE?:

During previous Ofcom consultations, channel 69 was awarded to the PMSE sector, but then taken away again due to its financial potential to generate revenue for Ofcom as a harmonised band across Europe for two-way mobile use. Given the severity of this u-turn, Ofcom must ensure that all relevant criteria are included in its assessment of replacement spectrum for channels 67 to 69.

One additional criterion to assess which spectrum is the best alternative to channel 69 is the availability of adjacent channels for interleaved or primary use. Ofcom states that there is a need for more than just one channel for UK-wide PMSE use: ‘Wireless-microphone users also place great value on channel 69 because it is adjacent to

interleaved spectrum in channels 67 and 68. Channels 67 and 68 are currently used for analogue terrestrial television but not heavily so. This means they afford microphone users access to the 24 MHz in channels 67-69 on a near-UK-wide basis.' BEIRG agrees: 'the PMSE sector still needs guaranteed access to 3 contiguous bands post-DSO, and it is incumbent upon Ofcom, as the regulator with responsibilities to citizens and consumers, to find a solution. Channels 37, 38 and 39 may be another option in this regard'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].

Ofcom estimates that around two thirds of channel 69 users are operating illegally. Aside from the fact that there is an opportunity here to ensure that all migrants to the alternative are licensed, Ofcom is making its calculations on the suitability of the alternative based on only the licensed users, which constitute only around one-third of the users [<http://www.ofcom.org.uk/consult/condocs/pmse/pmse.pdf> 3.20]. Assuming Ofcom develops a plan to ensure all migrants and new equipment purchasers are licensed, the number of registered users of the alternative is likely to be three times the current figure without taking into account the gradual increase of assignments mentioned by Sagentia

[http://www.ofcom.org.uk/consult/condocs/ddr/reports/report_sagentia.pdf 3.2.2].

Based on the 2006 assignments mentioned in Ofcom's PMSE consultation, this means 12,000 assignments for the new UK-wide PMSE channel. Ofcom needs to conduct more research into whether one UK-wide channel can incorporate all these licences. In a previous consultation BEIRG stated that 'BEIRG has estimated that over 90% of wireless microphone usage is unlicensed, a statistic that has never been refuted. In their analysis of PMSE demand in 2005 (and consequent prediction of whether there will be sufficient spectrum availability for PMSE post-DSO), Ofcom only took licensed usage into account (using JFMG data). The fact that Ofcom have drastically underestimated the PMSE sector's spectrum requirements further undermines their claim that there will be 'broadly' sufficient spectrum availability for PMSE post-DSO. Ofcom may argue that the only measure of PMSE spectrum demand is the licensing statistics and if the licensing statistics do not adequately represent PMSE use then this is the fault of those PMSE users who operate illegally. However, a significant proportion of the blame for unlicensed usage (and hence the drastic underestimation of PMSE spectrum requirements) lies with Ofcom, which has undertaken neither invigilation nor enforcement of the licensing regime²⁷, as evidenced by the lack of a single prosecution of a PMSE user for operating without a licence. Moreover, there is no evidence that Ofcom is going to do anything about this problem in future.'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].

Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. In A5.78 Ofcom states that the impact of A5.77 has been taken into account, but this has not happened for PMSE. Ofcom can not decide on the criteria to assess alternative spectrum without taking this potential loss of spectrum into account.

As mentioned in question 4, it is the view of the BEIRG, the lobbying group for the PMSE community, that there is insufficient spectrum to meet the needs of the PMSE community. Ofcom continues to maintain that the current plan for the DDR will meet the needs of PMSE [A5.83] despite proof to the contrary from BEIRG and from CSMG, Ofcom's own consultants: 'Digital switchover will be complete in the UK in 2012. As a result, 14 channels in UHF Bands IV and V will be nationally cleared of terrestrial television -- and Channel 36 of aeronautical radar -- and made available for new uses. Wireless microphone, IEM and talkback users of these bands will be affected by both a reduced availability of spectrum interleaved with digital terrestrial television and changes to the pattern of its availability'.

In summary, Ofcom needs to alter the criteria to reflect the likely need for more than one UK-wide channel and the need for at least two adjacent interleaved channels with light terrestrial television usage. For the whole of the Digital Dividend, Ofcom needs to allocate a greater amount of spectrum to PMSE.

Question 9: Do you agree with our technical and coverage analysis of the possible alternatives to channel 69 for PMSE?:

Ofcom claims, in 5.47, that digital technology can be used increase the spectral efficiency of wireless microphones and states that a report by an independent consultant will be published shortly which looks into this. Is this the same report that BEIRG requested be published in August 2008? 'Ofcom recently commissioned CSMG, a telecoms and media consultancy, to analyse how wireless microphones, in-ear monitors (IEM) and talkback systems might make efficient use of spectrum, and potentially operate in alternative spectrum to the UHF band, in the future²⁸. BEIRG is disappointed and surprised that Ofcom has not published the results of CSMG's analysis. We understand that the following conclusion appears in the draft report - that wireless microphone technology is unlikely to either (a) become more spectrally efficient or (b) be able to operate in alternative spectrum to the UHF band, at least into the medium term.'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>]. Ofcom needs to publish the report promptly and explain why there has been such a delay in an important publication. Additionally, digital technology is still in its infancy, making it an unviable option for the migration period. It has yet to demonstrate that it can use spectrum as efficiently as analogue equipment, despite theoretical models.

There are a number of additions to make to the technical and coverage analysis of the possible alternatives to channel 69 for PMSE:

Interleaved Spectrum:

5.28 Ofcom and its stakeholders need to know the results of the refined assessment now in order to make an informed decision on this consultation.

5.30 Ofcom has failed to actually provide the evidence that there is equipment available which can tune across a range of more than 24MHz. This information should also be included in the consultation. For example, how far can this new equipment tune?

Channel 38:

5.36 The phrase ‘although subject to further consideration’ is not appropriate when consulting on a subject. All information should have been provided to allow for an informed decision.

5.38 ‘and so minimise the risk of harmful interference to new services in channel 37.’ Ofcom is keen to address the possible interference by wireless microphones on adjacent services, but continuously fails to address the reverse [3.24] [5.24]. Responses to the first consultation noted this omission but nothing has yet been done to rectify it.

5.39 The approach of avoiding using part of the new channel is inefficient and restricts an already congested area (Ofcom is keen to avoid inefficient use of spectrum as mentioned in previous consultations). A better solution would be to implement a guard band at the top end of channel 37. Ofcom’s commissioned report by Arqiva notes that channel 38 could ‘form a guard band between ch39 and any application in ch37’ [<http://www.ofcom.org.uk/consult/condocs/800mhz/arqiva.pdf>]. This is not acceptable, since this implies that interference from 37 and 39, though not reaching each other, would be harmful within channel 38.

Adjacent interleaved channels with light terrestrial television usage would need to be secured for PMSE next to channel 38 in order for it to be usable as a UK-wide PMSE channel.

FDD Duplex Split:

This may be an appropriate ‘new-technology’ band, since it would not result in the inefficient restriction of existing spectrum for existing users and auction winners. If, as a result of the CEPT FDD band plan, it became available it would serve as a useful temporary medium for new developments, or as a suitable addition to the increasingly congested frequencies available to PMSE users

[http://www.ofcom.org.uk/consult/condocs/ddr/reports/report_sagentia.pdf 3.2.2].

Adjacent interleaved channels with light terrestrial television usage would need to be secured for PMSE next to the FDD Duplex Split in order for it to be usable as a UK-wide PMSE channel.

Channel 70:

Since it is licence exempt, this channel is already of limited use to primary users of channel 69 and interleaved users of channels 68 and 67. It’s usefulness is unlikely to increase as a result of the loss of the 800MHz band.

Adjacent interleaved channels with light terrestrial television usage need to be secured next to channel 70 in order for it to be usable as a UK-wide PMSE channel.

872-876/917-921 MHz:

Each portion of this is only 4MHz in size, which is of limited use to the primary users of channel 69.

Adjacent interleaved channels with light terrestrial television usage need to be secured next to these 4MHz sections in order for it to be usable as a UK-wide PMSE channel.

5.45 Ofcom is keen to address the possible interference by wireless microphones on adjacent services, but continuously fails to address the reverse. Please add that GSM base stations would also cause harmful interference to wireless microphones.

1785-1800 MHz:

There is no mention of the health and safety risk associated with operating body-worn

equipment in these frequencies at the required power levels. This is a significant and dangerous omission.

Summary: Channel 38 is the only viable option, provided that at least two channels with light terrestrial television usage of interleaved spectrum are available adjacent to it. There are some significant omissions from the technical assessment of suitable alternatives to channel 69, which needs addressing in another consultation before a decision is made by Ofcom.

Question 10: Do you agree with our economic assessment of the realistic alternatives to channel 69 for PMSE?:

Ofcom is expecting a response on a consultation missing important information. In 3.30 the information on how to fund the clearing of the 800MHz band will be released 'later this year'. In 4.65 Ofcom states that the matter of funding is being discussed with the Government. This should already have been done and the results presented to stakeholders in this or another consultation in order to make a suitably informed decision. Funding information is crucial to the success of any migration from the 800MHz band and no official decision should be taken until it is available and has been consulted on. An economic assessment of the realistic alternatives to channel 69 can not take place without consideration for the loss of interleaved spectrum mentioned [A5.77].

The models used in the estimate by Spectrum Value Partners could just as easily be applied to estimate the value of PMSE to the European and UK citizens [A5.5]. Unfortunately it does not mention PMSE once. Ofcom needs to provide evidence, to the same degree of detail, of the value of PMSE to the European and UK citizens and consumers, in order to demonstrate to stakeholders that Ofcom is not driven by the generation of revenue. Nor does Ofcom consider PMSE in its quantified economic analysis [A5.55].

Question 11: Do you agree that channel 38 is the best alternative to channel 69 for PMSE?:

Channel 38 is the best option for PMSE, provided that the users of channel 37 do not cause harmful interference. Currently, channel 69 has a low power user next to it in channel 70. A high power user in channel 37 could cause harmful interference, so a guard band needs to be placed at the top of channel 37 to protect from interference and therefore provide the same quality of service currently available [A6.42]. This guard band needs including in table A6 and any other relevant tables. Ofcom's commissioned report by Arqiva notes that channel 38 could 'form a guard band between ch39 and any application in ch37'

[<http://www.ofcom.org.uk/consult/condocs/800mhz/arqiva.pdf>]. This is not acceptable, since this implies that interference from 37 and 39, though not reaching each other, would be harmful within channel 38.

Of further benefit would be the harmonisation of channel 38 for PMSE use in areas other than the UK, reducing equipment costs – something which Ofcom agrees is beneficial for other services such as mobile companies [3.14]. The same benefits apply to the PMSE industry: 'it becomes possible for manufacturers to realise greater economies of scale' and 'the benefits should flow to UK citizens and consumers'. Ofcom acknowledges the benefits of harmonisation in terms of the US [5.56]. Further

research on harmonisation should be undertaken by Ofcom before consultation on this subject ends.

There is no mention, in the main sections of this consultation, that channel 38 entail substantial lower opportunity costs, to the tune of £100,000 a year [A5.83]. Given that the order of magnitude discussed in this consultation is consistently in billions, £100,000 is not particularly substantial at all. It is less than one percent of most of the figures quoted.

In all of the options, Ofcom needs to ensure that PMSE equipment is not subjected to interference from any other equipment including cognitive devices. Ofcom has yet to come to a decision with regard to cognitive devices sharing spectrum with PMSE equipment and is encouraged to ensure it has all the correct information before making such a decision.

Question 12: Do you agree that we should award channel 38 to the band manager on the same terms as would have applied to channel 69?:

Yes, so long as Ofcom can provide information on the technical availability of channel 38 and consult on it before making a decision.

Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. In order to make such an award, PMSE needs to be considered in the quantified economic analysis conducted by Ofcom.

Question 13: Do you agree with our proposal to maintain PMSE access to channel 36 on 12 months? notice to cease and to the rest of the cleared spectrum (channels 31-35, 37 and 61-69) until DSO is completed in the UK in late 2012?:

The idea of extending the time during which PMSE can use channels 31 to 37 and 61-69 is good, but it doesn't allow much time for equipment used up to this point to be re-banded ready for use in the new channels. As mentioned before, research needs to be done into whether sufficient time has been allocated for the manufacturers to re-band such a large quantity of equipment.

Question 14: Do you agree with our approach to determining eligibility for, and our assessment of the level of, funding to move PMSE from channel 69?:

5.70 please add the 'equipment to be considered needs to be functioning' to the list of requirements.

5.70 Please clarify how Ofcom intends to determine the full lifecycle of equipment. Many PMSE users already derive a significant income from radio equipment that is over 10-years old, having invested in keeping it extremely well maintained. This number will only have increased by the time comes to migrate to another area of spectrum. 'Ofcom also needs to acknowledge that equipment for which full

depreciation has taken place continues to hold value within the industry because of the longevity of the life of the equipment and its rental value within the PMSE sector' [<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].
5.72 Please provide the evidence/source that 5% of wireless microphones that can tune to channel 69 can also tune to channel 38

Ofcom's proposal to limit qualifying equipment to anything bought before February 2009 effectively puts a three-year suspension on buying new radio microphones, which can not be good for the industry economically, especially for manufacturers, on whom Ofcom and the PMSE community are relying to develop new technology and assist with retuning old equipment. 'without guarantees of security of tenure in the digital interleaved areas of spectrum, there will be no commercial imperative for suitable equipment to be developed. The PMSE sector requires certainty of spectrum access over a reasonable period of time in order for expensive new PMSE equipment development to make economic sense. Furthermore, the PMSE sector, after having been forced to re-equip by the reorganisation of spectrum associated with DSO and DDR in 2012, may have to do so again in 2018. PMSE protected access to the 'digital interleaved' spectrum must continue to 2026 rather than 2018.'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>]

Ofcom is expecting a response on a consultation missing important information. In 3.30 the information on how to fund the clearing of the 800MHz band will be released 'later this year'. In 4.65 Ofcom states that the matter of funding is being discussed with the Government. This should already have been done and the results presented to stakeholders in order to make a suitably informed decision. Funding information is crucial to the success of any migration from the 800MHz band and no official decision should be taken until it is available and has been consulted on. Ofcom needs to make allowances for the eventuality that a greater degree of funding will be required for the migration. The level of funding mentioned in 5.74 grossly underestimates the costs the process of migration will impose on the PMSE community. There has been no allowance for the logistical costs of managing the organised movement of equipment for retuning and the costs of hiring replacement equipment while the re-tune takes place (Ofcom forgets that many pieces of equipment are used 7 days a week). 'At a conservative estimate, it costs an average-sized touring production around £1000 per week to rent its radio microphones and in-ear monitor systems equipment.'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].

There is no guarantee that there will be sufficient hire stock to meet these needs. There is also likely to be equipment which, if it weren't for the migration imposed by Ofcom, could function for a great number of years without problem, but for which modification to make it useable in channel 38 is not possible. Ofcom will need to meet the full cost of replacing this equipment. 'the consequence of the reduction and change in pattern of spectrum availability for PMSE post-DSO is that the vast majority of PMSE equipment currently in the marketplace (with a value in excess of £30 million) will be rendered redundant or require significant modification'

[<http://www.beirg.org.uk/BEIRG%20response%20to%20DDR%20550-630%20MHz%20and%20790-854%20MHz%20condoc%20August%202008.pdf>].

Question 15: Do you agree that three years is long enough for PMSE to move from channel 69?:

Ofcom is considering a three-year migratory period culminating in 2012 after the Olympics. Ofcom has not considered the vast amount of equipment being used for the Olympics. Ofcom either needs to provide sufficient trained engineers to undertake the modification in the small time-frame allowed, or extend/adjust the migratory period beyond 2012 in order to allow equipment used for the Olympics to be re-banded in an unhurried manner.

It is worth pointing out at this juncture that, though Ofcom claims that PMSE representatives have suggested that three years is a plausible time-frame for modification of existing equipment in 5.75, the correct interpretation of the PMSE lobbying group is AT LEAST three years, as stated earlier by Ofcom [5.52] Please provide the source material for Ofcom's claim that 'the upper end of the range' contains 5% of equipment capable of tuning between channel 38 and channel 69 [5.73].

Please provide the source material for Ofcom's claim that half of 'the upper end of the range' is valued at only £100m. BEIRG has corrected Ofcom's undervaluation before [5.73].

Please provide the source material for Ofcom's claim that half of 'the upper end of the range' will be more than 5-years old [5.73]. Many professional PMSE users already derive a significant income from radio equipment that is over 10-years old, having invested in keeping it extremely well maintained. This number will only have increased by the time comes to migrate to another area of spectrum.

Ofcom's calculation based on the erroneous assumptions above, significantly underestimates the level of funding required to move wireless microphones from channel 69 to channel 38. Ofcom has yet to publish details regarding the source of any funding and the specific costs of moving wireless microphones from other parts of the spectrum, such as channels 61 and 62.

Ofcom suggests that mobile services may build part of the network before spectrum is cleared for use so that a degree of network testing can occur [A6.74]. Ofcom is referring to testing within 'low frequency' spectrum [A6.25]. Ofcom needs to clarify that any testing within spectrum still used by the PMSE community must not pose a risk of interference to the community's wireless equipment. Ofcom also needs to clarify exactly what spectrum it considers 'low frequency'.

Question 16: Do you agree that with our analysis of the key impacts of our policy options? Are there any other key impacts we should assess?:

In 2.10 Ofcom is keen to stress its service neutrality, despite then showing a clear preference for mobile services in 2.21. Another demonstration of flawed analysis is shown in 3.9 where Ofcom admits that its base case is overly optimistic. If data such as these are skewed, how can stakeholders rely on the other data produced by Ofcom? The models used in the estimate by Spectrum Value Partners could just as easily be applied to estimate the value of PMSE to the European and UK citizens [A5.5]. Unfortunately it does not mention PMSE once. Ofcom needs to provide evidence, to the same degree of detail, of the value of PMSE to the European and UK citizens and

consumers, in order to demonstrate to stakeholders that Ofcom is not driven by the generation of revenue. Nor does Ofcom consider PMSE in its quantified economic analysis [A5.55].

There are other key impacts Ofcom should assess: Ofcom acknowledges that it does not explicitly consider PMSE demand in its quantified economic impact analysis of the alternative policy options because it assumes that the minimum spectrum required to meet the needs of PMSE users would be available in all policy options [A5.51]. This is not the case if reduced interleaved spectrum will be available, as stated by Ofcom in A5.77, since this will change the amount of available interleaved spectrum. Therefore A5.53 is incorrect. Ofcom needs to assess PMSE demand in its quantified economic impact analysis.

As mentioned in question 4, it is the view of the BEIRG, the lobbying group for the PMSE community, that there is insufficient spectrum to meet the needs of the PMSE community. Ofcom continues to maintain that the current plan for the DDR will meet the needs of PMSE despite proof to the contrary from BEIRG [A5.83]. Ofcom needs to assess whether there will be sufficient spectrum to meet the needs of the PMSE community, given the new information presented to it.