

Question 1: This executive summary sets out Ofcom's proposals for the release of the digital dividend. Do you agree with these proposals?:

The PMSE Pro User Group recognises the principals on which the DDR proposals have been made, but the PMSE sector fundamentally disagrees with the proposed methods of implementation in so far as it affects them.

Question 2: Do you have any comments on our analysis of the essential constraints that will apply to the available UHF spectrum?:

The PMSE Pro User Group can only answer the question for the PMSE sector. The PMSE Pro User Group believes the quality of the research undertaken is deficient and hence the conclusions drawn are questionable. For instance analysis of the value of equipment that would become redundant is incorrect. (See Key Point 2, i) The PMSE Pro User Group also disputes Ofcom's suggestion that at auction this spectrum is unlikely to be of interest to many bidders. We suggest that letters from Dell Ltd and Vodafone together with public statements from consultants contracted to Microsoft contradict this. (See Key Point 1, iii). Moreover, Ofcom's distinction between PMSE 'professional use' vis-à-vis 'community use' leads to further uncertainties in the market because it is unclear which PMSE users fall into which category.

Question 3: Do you agree with the more detailed analysis and proposals regarding these technical constraints as set out in Annex 10?:

The PMSE Pro User Group believes there are a number of additional points that need to be made with regard to the analysis in Annex 10 in relation to PMSE use of the UHF spectrum. The PMSE Pro User Group- DDR Consultation Submission
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The PMSE Pro User Group does not believe that the problem of interference to suitable co-ordination (Annex 10.136).

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The PMSE Pro User Group suggests that any additional Interleaved broadcast services (Annex 10.137) will adversely affect the capacity of the interleaved spectrum to support PMSE activities. The conclusions drawn elsewhere in the DDR regarding the ability of the interleaved spectrum to supply the PMSE sector's needs do not, we believe, take this into account.

With reference to Annex 10.141 & 142, we agree that there is a need for continuing co-ordination of PMSE activities in the UHF spectrum as currently carried out by a single band manager. The need for co-ordination will be even greater during both this transitional period and then following the DSO than it is at present. Ongoing coordination is essential if the PMSE sector is to continue to thrive in the UK.

Regarding future uses of the Cleared spectrum we note that in Annex 10.143 there is no mention of the PMSE sector's continuing extensive usage of TV channels 36 and 38 on a secondary basis, although this is mentioned elsewhere (e.g. Annex 11.40). We are aware of the need to protect the primary users of these channels from harmful co-channel and adjacent channel interference. We believe a continuation of the current practice of co-ordinated use of channels 36, 37, 38 and

39 by PMSE users, will offer the necessary protection from other potential highpowered

services to Radio Astronomy and Radar

PMSE services in the UHF spectrum from other services has been adequately considered.

The issue of Adjacent Channel Interference to DTT reception from other services is discussed in Annex 10.11. However the issue of adjacent channel interference to PMSE receivers and the impact on the PMSE sector's future use of the interleaved spectrum is not studied. Clearly any future use of any part of the UHF spectrum will have an impact on PMSE equipment in neighbouring channels whether in the interleaved or cleared spectrum.

The issue of Image Channel Interference to DTT reception from other services is discussed in Annex 10.13. However the issue of Image Channel Interference to PMSE receivers and the impact on the PMSE sector's future use of the interleaved spectrum was not studied. Whilst we appreciate that it is difficult to plan comprehensively for Image Channel Interference to PMSE equipment because of the many different IF frequencies in use by different types of PMSE equipment, and consequently the many different image frequencies, we do believe that this is an area that requires further study.

Similarly the adjacent channel rejection of different brands and models of PMSE equipment varies quite widely. In many respects the technical reports do not differentiate between the many different quality levels of PMSE equipment available.

With reference to Annex10.14, it is impractical for PMSE users to share frequencies with any type of portable device that uses an in-band uplink. Such devices would present a serious risk of interference to PMSE receiving equipment. Due to their low power operations and exacting standard for sound transmission quality, PMSE equipment is extremely susceptible to interference from other sources. For example, wireless microphones typically operate at 10 mW. To achieve the audio quality required for television and sound production as well as for theatre, a 100 dB signal-to-noise ratio is required throughout the duration of the program. These high standards expected by consumers and audiences must be considered when developing rules to protect the PMSE user community from interference. We do not believe that there is any practical way to manage this risk. Such interference would be very costly to the PMSE sector and would dangerously undermine the high level of confidence that exists internationally in the UK PMSE industry's technical capabilities.

We note that sections Annex10.83 ? Annex10.85, which refer specifically to the PMSE sector only take account of the potential for interference from PMSE to DTT. No attempt appears to have been made to quantify the potential for interference to PMSE from adjacent channel DTT. We do however welcome Ofcom's conclusion that PMSE services are compatible with the planned DTT services subject to

Question 4: Do you have any comments on Ofcom's assessment of the potential uses of this spectrum? Are there any potential uses which should be considered that are not mentioned in this document? :

The PMSE Pro User Group believes Ofcom has covered many important potential uses of spectrum in the consultation. However we believe Ofcom has significantly underestimated the likely interest in some of those uses in the interleaved

spectrum. For the interleaved spectrum the PMSE Pro User Group would suggest the potential uses of this spectrum are considerable. The PMSE Pro User Group would cite both a letter from Dell Ltd and the Vodafone RSPG Public Consultation document on the implications of the Digital Dividend as evidence of the likelihood of interest in this spectrum, interests that are not included in the Ofcom document. The PMSE Pro User Group suggests that the number of potential users is underestimated by the Ofcom document and that in the event that an auction system is established to award the release of spectrum utilised by the PMSE sector, that there would be considerable interest in acquiring this spectrum. (See Key Point 1, iii). The PMSE sector is also concerned that some of this interest would be for the speculative use of this spectrum. In contrast the PMSE's requirements are well established. They have accrued 'grandfather rights' over a thirty year period, and now form a critical component of the British Entertainment Industry. The PMSE Pro User Group also suggests that whilst Ofcom has covered many spectrum uses it has inadequately recognised that rather than remaining constant or decreasing, the spectrum use of the PMSE sector is likely to increase in the foreseeable future (beyond 2012). This increase will occur despite potential gains in spectral efficiency. The Tour de France, the Commonwealth Games and even more so the 2012 London Olympics are all examples of prestigious international events whose success is dependent on reliable PMSE applications. Companies will not invest in new PMSE equipment for these events if they do not know whether they can use their equipment in determined frequency bands beyond 2012.

Question 5: Do you have any comments on our analysis of the choice between a market-led and an interventionist approach to the release of this spectrum? Do you agree with the analysis of different mechanisms for intervening to remedy potential market failures?..:

The PMSE Pro User Group would suggest that market led and interventionist approaches are not mutually exclusive. We feel that a solution lies between the two, and that this question seeks to polarise positions. There is a median position. This will permit some spectrum to be auctioned for other uses. For the PMSE sector a value could be placed on the interleaved spectrum. (See Key Point 1, v) We believe the 'one size fits all' auction proposals in the Ofcom document will precipitate market failure; consequently we have suggested an extension of transitional arrangements from 2012 until 2025. We also suggest that a system of 'gifting' of spectrum on an annual rental be established, and have evidenced the likely market failure that would result from the auction process for PMSE spectrum usage. In addition to the suggestions in Key Point 1, v in relation to interleaved spectrum, the PMSE Pro User Group also advocates that channels 67 and 68 should be reserved for PMSE use on a similar basis as outlined in Key Point 1, vi. This would provide several advantages as it would allow three TV bands of contiguous spectrum that could be used nationwide. This proposal would therefore address the lack of spectrum that is available on a national basis. (See Key Point 3). It would also address a significant part of the problem of the legacy of redundant equipment. Furthermore it would also act as a buffer to the Channel 69, community usage as well as recognising the potential shortage of spectrum available in the digital interleaved spectrum.

Question 6: Do you agree with our proposals to continue making available channel 69 for use by low power PMSE devices? Do you agree with our proposal to make some or all of the spectrum available for use on a licence-exempt basis?:

The PMSE Pro User Group agrees with proposals to continue making channel 69 available for low power and PMSE usage in keeping with current practice. The PMSE Pro User Group advocates keeping the majority of channel 69 usage coordinated and licensed (See Key Point 3) and to give up the distinction between 'professional users' and 'community users'. There are many unresolved issues with regard to what it means to be a 'community user'. The Ofcom Consultation document offers little in the way of interference protection from unlicensed devices allowed to operate in the UHF bands. Having PMSE for 'Professional Use' and PMSE for unlicensed use in the same band (e.g. in Channel 69) will compromise the use of this band by high-demand end users that usually require significant cleared bandwidth.

Question 7: Do you agree that there should be transitional protection for professional PMSE users to ensure that they can continue to access interleaved capacity until at least the end of 2012? Do you have any views on the mechanism for providing future access to this spectrum?:

The PMSE Pro User Group supports the idea that there should be transitional protection for professional PMSE users, but does not agree that 2012 is a suitable date to end such protection. The PMSE Pro User Group advocates the extension of transitional arrangements until at least 2025. The PMSE Pro User Group suggests that a single band manager be established, that is independent of Ofcom, and that becomes responsible for the organisation, charging and coordination of authorised spectrum usage by the PMSE sector (See Key Point 1, v).

Question 8: Do you consider that additional spectrum from the digital dividend should be reserved for low power applications? If so, please provide as much evidence as possible about the nature of the application and its potential value to society.:

Uncoordinated usage of Low Power devices, as defined in the Ofcom Digital Dividend Review- low power applications and innovation (DDR 6.107, p.80), which includes devices such as home wireless networks, radio frequency identification (RFID) and wireless 'last mile' broadband devices are in the opinion of the PMSE Pro User Group incompatible due to the high interference risk. As we explained earlier, due to their low power operations and exacting standards for sound transmission quality, PMSE equipment is extremely susceptible to interference from other sources. For example wireless microphones typically operate at 10 mW. To achieve the audio quality required for television and sound production as well as for theatre, a 100 dB signal-to-noise ratio is required throughout the duration of the program. These high standards expected by consumers and audiences make it impossible to have uncoordinated usage of Low Power devices in the same bands as PMSE equipment.

Question 9:Do you consider that it would be desirable to hold back some spectrum from award with a view to its potential use for future innovation? If so, please provide comments on how much spectrum should be held back, and for how long.:

The PMSE Pro User Group agrees that it is desirable to hold back some spectrum from award with a view to its potential use in the future. The PMSE Pro User Group suggests that it is important to hold back spectrum from award until the requirements of the Digital Switchover are more fully understood. The PMSE Pro User Group also suggests that in holding some spectrum back from award it would create a 'spectrum buffer' for the future, which has the potential to be used as a reserve for very large live events. However the PMSE Pro User Group is opposed to elevating the interests of a future possibility above those of existing services. As stated above, the 'burden of proof' is on the new applications to evidence that they work and actually bring significant benefits to end users.

Question 10:Do you agree with our proposal that we should package the interleaved spectrum in a way that would be suitable for use by local television services, but not reserve spectrum solely for this use?..:

The PMSE Pro User Group suggests that a single band manager should license the PMSE sector and is therefore not in favour of spectrum specifically reserved for local television.

Question 11:Do you agree with our proposal to package the spectrum in a way which does not preclude mobile broadband use, but to take no further action in relation to this use?..:

The PMSE Pro User Group believes that provided mobile broadband use is neither in the same nor adjacent television channels as those used by the PMSE sector, that coexistence with mobile broadband services would not be a problem. However, the PMSE Pro User Group is clear that it would object to any mobile broadband use either in the same or adjacent television channels as those used by the PMSE sector. This is due to the inevitable co-channel or adjacent channel interference that would occur as a result.

Question 12:Do you agree with our proposal that we should not intervene in the award of this spectrum to reserve spectrum for DTT? Do you agree that we should package the spectrum in a way which is suitable for DTT use?..:

The PMSE Pro User Group understands this question to apply to the cleared spectrum. Within the confines of the DDR the amount of spectrum is finite and in so far as reserving further spectrum for DTT will reduce the availability of all other users, the PMSE Pro User Group is opposed to such proposals.

Question 13:Do you consider that we have included in our analysis the most material risks in relation to market failure?..:

The PMSE Pro User Group believes that analysis as it stands overlooks a number of important features regarding the most material risks of market failure. The PMSE Pro User Group is able to quote verbatim Ofcom Chief Executive Ed Richards in a letter to Peter Luff MP, Chairman of the Commons Trade and Industry Select Committee where he states that Ofcom's analysis 'has not identified anything intrinsic to the nature of professional PMSE use that would preclude a bid that reflected its value'. The PMSE Pro User Group is clear in its disagreement with this statement and would refer Ofcom to previous points (See Key Point 1 i, to v). The PMSE Pro User Group is also clear in its belief that unless the proposed timetable for support granted to the PMSE sector during the DSO is extended to the more realistic date of at least 2025, the difficulties facing the PMSE sector will inevitably lead to market failure (See Key Point 2, iii, v).

Question 14: Do you agree with our proposal to auction licences for the use of the available UHF spectrum?..:

Whilst the PMSE Pro User Group recognises that auctions are one mechanism for allocating spectrum, for the reasons explained above (See Key Point 1 i to v), we do not believe that auctions are suitable for the PMSE sector.

Question 15: Do you agree with Ofcom's proposals as to the timing of any auction? If not, what alternative proposal would you make and why, and what evidence and analysis can you provide in support of your alternative proposal?..:

The PMSE Pro User Group does not support Ofcom's proposals as to the timing of any auction in so far as it affects the PMSE sector. They believe that for them any auction system is in itself flawed and is an impossible mechanism for the PMSE sector to engage in. Furthermore the PMSE Pro User Group suggests that the impact of Ofcom's timetable for the Digital Switchover on the PMSE sector will be damaging and would advocate extended transitional arrangements that remain in place until 2025, when there will be a clearer idea of the ramifications of the Digital Switchover (See Key Points 2, iii, iv, v).

Question 16: Do you have any views on which of the packaging options identified for the cleared spectrum would be most suitable?..:

The PMSE Pro User Group believes that until there is greater clarity as to the capacity of digital interleaved spectrum and of its availability to the PMSE sector, it is unable to comment on the PMSE's requirement for cleared spectrum packaging.

Question 17: Do you have any views on which of the packaging options identified for the interleaved spectrum would be most suitable?..:

The PMSE Pro User Group believes that until it is clear how useable the interleaved spectrum will be, it is difficult to identify the best packaging option. Given that the PMSE demand for spectrum will increase, there must be guarantees in place for PMSE sector to use the 'interleaved' spectrum. In particular anything which could result in there being more than one 'band manager' for UHF PMSE spectrum would

be extremely unsatisfactory. We believe that having more than one 'supplier' of UHF spectrum will be in no way beneficial to professional PMSE users, and will only serve to complicate operations, confuse users and introduce new and unnecessary delay and costs to content production. Because of the essential tuning range constraints of PMSE equipment, having two apparently competing 'band managers' with different frequency ranges would only give the illusion of competition since a user with equipment in one frequency range would be restricted in their choice of supplier. The inherent geographical constraints of interleaved spectrum would further constrain PMSE users and only serve to prevent actual competition. Many PMSE users have previous experience of the uneven playing field that can result from having two (competing) band managers in the UK (ASP Frequency Management and JFMG). Whilst the concept of secondary markets and trading between different band managers may be attractive to economists and accountants the practical effect is not helpful to the PMSE sector.

Question 18:Do you have any views on which of the auction design options would be most suitable?..

The PMSE Pro User Group feels it has made it quite clear that the disparate, diverse and diffuse nature of the PMSE sector makes it impossible that this industry could enter an auction system for the release of spectrum. Therefore we have no view on auction design options.

Question 19:Do you agree with Ofcom's proposals for the non-technical terms of the licences to be awarded for use of the UHF spectrum?..

The lack of clarity in Ofcom's Digital Dividend Review- proposed license terms (DDR 11.32 p.132), makes it impossible for the PMSE Pro User Group to provide a coherent answer.

Question 20:Do you agree with the analysis of the options as set out in this Impact Assessment?..

The PMSE Pro User Group has no comment on this question

Additional comments:

No additional comments