

**Question 1: The executive summary sets out our proposals for the DDR band manager award. Do you agree with these proposals?:**

The summary, together with the document as a whole, is oriented towards PMSE (pro user) use of the spectrum. Studies have shown that there is a considerable number of community users sharing the spectrum. Provided that community users are aware of the requirements and that they collaborate with PMSE users, they are entitled to the same service and protection as PMSE. Community users are citizen-users which Ofcom is legally obliged to consider. The summary and the proposals do not adequately explain how community users fit into the proposed scheme. Notably, community users often do not have the same ability to pay as PMSE users and it is important that there is some recognition of that. For example, such users are under DDA obligations for which use of the spectrum becomes a technical necessity. Thus paying for spectrum is yet another cost to meeting social obligations.

**Question 2: Do you agree with our proposal to award access rights to channel 38 that will last as long as we sustain the protection of radioastronomy in the UK?:**

No comment.

**Question 3: Do you agree with our proposal to include the interleaved spectrum in channels 61 and 62 in the cleared award?:**

In all Ofcom DDR publications Channels 61 and 62 were, until December 2007, part of the spectrum available to PMSE. Those trying to act responsibly for their organizations regards acquiring new equipment with an expected life of 5-10 years bought using this guidance. To have these channels withdrawn at such short notice is not reasonable. If they are to be included in the award then there must be some compensation arrangements for such users.

**Question 4: Do you have any views on our proposed approach to protecting reception of DTT services?:**

Whatever DTT reception standards are adopted must be clear to the DTT-receiving public. Many such users think that an internal antenna is acceptable. Indeed, there are increasing users of such systems attached to PCs. So to heighten the signal strength threshold is only fair if it is widely published so the public can make informed purchasing decisions.

**Question 5: Do you agree with our proposal not to award the bands between 11.7 GHz and 12 GHz to the band manager?:**

No comment.

**Question 6: Do you agree with our general approach of awarding the remaining 49 Ofcom-managed bands allocated to PMSE but lying outside the digital dividend to the band manager?:**

No comment.

**Question 7: Do you agree with our proposal to award key PMSE bands to the band manager?:**

Yes. If award holders have any spare spectrum then Ofcom should make it attractive to lease it to the Band Manager also.

**Question 8: Do you agree with our proposal to award 2290-2300 MHz to the band manager on the same terms as other wireless-camera channels at 2 GHz?:**

No comment.

**Question 9: Do you agree with our proposal to award low-demand PMSE bands to the band manager?:**

Yes.

**Question 10: Do you agree with our proposal to award no-demand PMSE bands to the band manager?:**

Yes.

**Question 11: Are there any other types of DTT transmission that should be protected from potential cognitive devices or other factors that we should take into account?:**

The Band Manager will be the service gateway to the spectrum which it controls. How that spectrum may be used is always going to be a matter of informed speculation. 'Cognitive' devices, as currently conceived, are a menace to spectrum management and service. If the decision is taken to allow licence-free use of such devices then, according to market principles, they will have no rights to service. All licensed users will have a legitimate claim to the service they have purchased. The Band Manager, with Ofcom, must have the resources and powers to enforce licensees' expectations of service. There are very, very serious concerns about whether service standards will be able to be enforced as interest and use of spectrum increases. Such 'free loaders' would be 'cognitive'-type devices, illicit users of PMSE-type equipment or other new types of spectrum user.

**Question 12: Are there any potential future PMSE applications other than currently available wireless microphones, in-ear monitors and talkback systems that you consider should be protected from potential cognitive devices?:**

See answer to Q11.

**Question 13: Is there sufficient evidence to require protection for other services such as mobile television, bearing in mind the potentially negative implications of such protection for deploying cognitive devices?:**

See answer to Q11.

**Question 14: Do you have any views on the appropriate notice period for temporary PMSE access to channels 63-68 and/or on whether we should extend temporary access to channels 31-40?:**

Continued use of Channels 60-68 (note this includes 60-61) should be allowed provided the terms of use are very clearly publicised. Further, if any awardees find that they have geographical spectrum free then the Band Manager should have first refusal in its ancillary exploitation.

**Question 15: Do you agree with our proposal that the licence to be awarded should have an indefinite duration?:**

The licence durations have a direct impact on users. It is recognised that PMSE equipment has expected lifetimes that extend to 10 years. If this is not reflected in the Band Manager's ability to award licences with some degree of certainty then this will damage PMSE (and other licensees?) business position. Witness what has happened so far regarding the current DDR programme: PMSE/community users are still largely ignorant of what is happening or how to plan. This must not happen again and therefore the seeds for it to happen again must not be sown. Thus, once a decision has been taken then the licences should be indefinite and notice periods should be compatible with the lifetimes of the licensed equipment.

**Question 16: Do you agree with our proposal that the licence to be awarded in respect of bands currently used for PMSE should be subject to no initial period?:**

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**Question 17: Do you agree with our proposal that the licence to be awarded in respect of bands currently used for PMSE should be subject to a notice period for variation or revocation on spectrum-management grounds of one year?:**

Any 'period' of one year does not seem compatible with licensee equipment planning. See answer to Q15.

**Question 18: Do you agree with our proposed approach to allowing the new institutional arrangements for PMSE spectrum access to bed down?:**

Yes.

**Question 19: Do you agree with our proposal that the licence to be awarded in respect of bands with no current PMSE use should be subject to no initial period?:**

See answer to Q15. However, the PMSE equipment business is global and not mass-market. The Band Manager is not in a particularly powerful position to 'encourage' use of other parts of the spectrum. Incentives to do this are of interest, but Ofcom should not expect the UK-only Band Manager to have much influence, even with pricing incentives. Note that Ofcom already accepts that this sector is subject to market failure.

**Question 20: Do you agree with our proposal that the licence to be awarded in respect of bands with no current PMSE use should be subject to a notice period for variation or revocation on spectrum-management grounds of five years?:**

See answer to Q19.

**Question 21: Do you agree with our proposals for varying or revoking the band manager's licence during the notice period?:**

See answer to Q15.

**Question 22: Are there bands where PMSE users require earlier certainty about longer-term access in the interests of promoting spectrum efficiency than our timetable for the band manager award allows?:**

See answer to Q15.

**Question 23: Do you agree with our proposals for the three selection criteria by which we will assess applications for the licence to be awarded?:**

Broadly, yes. However, the ability of a Band Manager to encourage efficient use of the spectrum is limited (see answer to Q19). Ofcom accepts that PMSE-type use is subject to market failure and some care must be taken in expecting an agent of Ofcom to make the sector 'market-based?'. As has been mentioned already, the consultation makes little recognition of the considerable and increasing numbers of community

users. This is still a very little-understood sector and has not, in general, entered the 'PMSE market'. It is generally agreed that community users have even less ability to pay for spectrum than the PMSE sector. If Ofcom is to carry out its social obligations, it must be sensitive to this and, in particular, allow its Band Manager to engage this sector without undue financial penalty (i.e. enshrine this in the FRND definition and AIP principles). The Band Manager must have powers to induce compliance ('good neighbourliness') among all users of the spectrum it controls. This requires (a) competence and understanding of the users (b) flexibility in pricing to induce and reward compliance from all users ('incentives') and (c) real, resourced powers of investigation and enforcement ('penalties'). Hitherto, there has not been much need for (c) but there is likely to be as uninformed use of PMSE equipment gets uncovered by the awards. Though the Band Manager would not be involved in award-spectrum defense, it must provide an attractive destination for new licensees, be they professional or community users. Such licensees must feel that they are buying something for their agreed fee.

**Question 24: Do you agree with our proposal to enshrine the commitments to PMSE users made by the successful applicant in the licence awarded to it?:**

On the assumption that 'PMSE users' includes licence-holding community users, yes.

**Question 25: Do you agree with our proposed approach to assessing applications?:**

Broadly, yes. Note that the community use sector is not well understood or represented but could become a significant part of a Band Manager's activity. As such, the interests of this sector must be taken into account in some formal way.

**Question 26: Do you agree with our proposal to use the block-edge mask approach to determine the technical licence conditions relevant to this award and to base these masks broadly on existing arrangements for PMSE spectrum access?:**

Care must be taken not to constrain either (a) future technology or (b) the Band Manager's ability to charge per unit of spectrum as it perceives it.

**Question 27: Do you agree with our proposal to set a separate fee for each Ofcom-managed band to be awarded?:**

The value put on any band is an exercise in technical speculation. Appendix 6 contains Ofcom's current thinking regards spectrum value which is based on current technologies. Against this Ofcom currently has the contrasting view that 'cognitive' use of much of the spectrum is of no value. If the Band Manager judges that it wishes to incentivise particular spectrum uses, this could be hampered by the particular (historic/arbitrary) prices set on target and destination bands. The best example of this is Ofcom's current pricing of Channel 69. This can only be understood as 'serving notice' on current users whilst purporting to allow its use for PMSE only. While it is accepted that some price must be put on the spectrum, the current efforts are too

simplistic. A lot more work is required to decide what prices are appropriate and how they should be allocated across the Band Manager's spectrum.

**Question 28: Do you agree with our proposal initially to set fees for access to MOD-managed spectrum on a comparable basis?:**

See answer to Q27.

**Question 29: Do you agree with our proposal to determine the band manager's licence fee first by deriving estimates of the opportunity costs of the spectrum to be awarded and second by setting band-by-band prices that strike an appropriate balance between our objectives for this award?:**

See answer to Q27.

**Question 30: What are your views on the options for phasing in AIP to full opportunity cost?:**

The question is what the 'opportunity cost' is. Ofcom is responsible for maximizing the social worth of the spectrum and, foremost, this needs acceptance ('buy in') from the users. Ofcom accepts that social worth is not measured by the amount of money raised for the Exchequer. Technically, acceptance can be measured by compliance. Ofcom must empower the Band Manager to induce compliance among the disparate users. It must not be forced to become a 'tax collector' through inappropriate pricing.

**Question 31: Do you agree with our proposal to set the band manager's licence fee for three years and to review it after that period?:**

Further work is required on pricing. Three years is essentially a 'notice period' and is short in comparison with the lifetime of PMSE equipment. See answer to Q15.

**Question 32: Do you agree with our proposal to review the band manager's licence fee periodically but no more frequently than every three years thereafter?:**

See answer to Q31.

**Question 33: Do you agree that where the interleaved spectrum to be awarded to the band manager is used for the operation of a DTT multiplex, we should replicate the ownership restrictions in the Broadcasting Act regime relating to (a) local authorities, (b) political bodies, (c) religious bodies and (d) bodies exerting undue influence but not replicate restrictions relating to (e) broadcasting bodies and (f) advertising agencies?:**

It is encouraging that the Band Manager will be managing any use of its spectrum. Inasmuch that some types of use will align with existing conventions, these should continue to apply.

**Question 34: Do you agree that we should facilitate interoperability between existing DTT multiplex operators and new operators using the interleaved spectrum awarded to the band manager?:**

See answer to Q33.

**Question 35: What are the merits of our proposed approach to providing spectrum information, in particular concerning the type of information that might be helpful and any impact that publishing information might have both on licensees and the wider spectrum market?:**

It may become a technical requirement that the Band Manager publish live licensed spectrum use information (e.g. in a data channel broadcast with DTT). This should be allowed subject to Ofcom guidelines similar to that proposed.

**Question 36: Do you agree with our assessment of whether our approach to awarding this spectrum appropriately promotes competition and efficiency?:**

This again affects the licensee-users (see answer to Q15). Ofcom always have the right to intervene but it should not be assumed. Every effort should be made to ensure that the current, single transition is steered to achieve the right result.

**Question 37: Do you agree with our proposal that ‘reasonable’ PMSE demand for the spectrum awarded to the band manager should be defined as the actual demand from PMSE users at FRND prices?:**

PMSE (‘pro user’) demand is only part of the real demand. Community use is believed to be largely unlicensed or ‘hiding’ within Channel 69 licensing convention. Much more work is needed to assess what the real spectrum demand is in order to foster compliance by all users. The Band Manager, with Ofcom, may well need to work with this problem live as its new contract and strategy develops. (See also answer to Q23.)

**Question 38: Do you agree with our proposals for ensuring that the band manager meets reasonable PMSE demand on FRND terms?:**

There is little experience in what FRND means in the context of community use. It is not practical or acceptable to relegate such users to the little licence-free spectrum available (in UHF, part of Channel 70). There is plenty of precedent of concessionary pricing (and taxing) of those with recognised community worth (i.e. registered charities). The meaning of FRND should recognise this status and set licence pricing accordingly so as to induce compliance from the user community as a whole. Indeed,

the overarching AIPs should be discounted to take account of community FRND pricing, provided that the Band Manager can show that the discount is used by those for whom it is intended.

**Question 39: Do you agree with our proposal to incorporate a suitable licence condition to enable us to access the spectrum awarded to the band manager to meet the requirements of the London 2012 Olympic Games and Paralympic Games and the Glasgow 2014 Commonwealth Games?:**

No comment.

**Question 40: Do you agree with our proposed approach to spectrum access for other major events?:**

Major events possibly have the most opportunity for a Band Manager to exercise market pricing. The Band Manager should have the freedom to use any surpluses it might generate to subsidise its strategy in other bands. Notably, this might mean running a below-cost-pricing of licences in order to induce long-term compliance in the community. Again, Ofcom should be sympathetic to this (primary) strategy in its reviews.

**Question 41: Do you agree with our proposals concerning disputes between the band manager and PMSE users as a whole?:**

Ofcom have already found it difficult to deal with PMSE users as a whole. The ‘pro user’ sector has managed to organize itself into a representative body: the community users have not. Community users are going to look to the Band Manager to be very sympathetic to their needs and they will rely on Ofcom much more to ensure that their needs are being met.

**Question 42: Do you agree with our proposals concerning disputes between the band manager and individual PMSE users?:**

There are very, very serious concerns about the ability of the Band Manager or, indeed, Ofcom to resolve technical disputes. The operational rules and relationships need to be developed now so that prospective Band Managers can understand what their obligations and costs may be regards disputes. Licensees must understand what their licence fee is paying for. If it is not for ‘interference free’ use of spectrum then users will not purchase licences. The corollary will be failure of the Band Manager and Ofcom’s duty to manage the spectrum.

**Question 43: Do you agree with our estimate that the band manager will require six months from licence award until it begins operating?:**

No comment.

**Comments:**

Adrian Pickering is a academic engineer in Electronics and Computer Science, University of Southampton. He is an associate of the Institute of Broadcast Sound and is Sound Supervisor for Highfield Church, Southampton. He is particularly concerned that the community sector (e.g. churches, universities) has reasonable access to 'PMSE' spectrum in order to carry out their social obligations.