



Your Association with Expertise

**CONSULTATION:** Digital Dividend Review: Band Manager Award

**Consultation Deadline:** 16 October 2008

**Respondent:** PLASA (Professional Lighting and Sound Association)

**Introduction to PLASA (Professional Lighting and Sound Association)**

PLASA is the lead professional body for those who supply technologies and services to the event, entertainment, communication and architectural industries. PLASA has a membership of over 550 members worldwide, including the leading specialists in professional audio, lighting, AV, staging, communications and related disciplines.

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

As Ofcom's proposals are set out in greater detail in the rest of the consultation document, we feel it would be inappropriate to address them here. However, generally speaking, we welcome Ofcom's recognition that the PMSE sector is not currently in a position to access spectrum via market mechanisms and that there would be a risk of market failure if it were forced to compete in the DDR auction process. We also welcome Ofcom's decision to award spectrum to a single band manager with obligations to meet reasonable PMSE demand through a beauty contest.

We believe that, if the band manager is aligned with the PMSE sector (as should be assured by the beauty contest criteria as enshrined in the licence obligations) then the PMSE sector will continue to be supplied with the spectrum that it needs to operate wireless devices that are essential for content production. As a consequence, the PMSE sector should continue to thrive.

The PMSE sector will always need spectrum to make content production possible; while the bandwidth and frequency of this spectrum may change over time, this fundamental requirement for spectrum will not.

***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?***

Yes, if channel 38 is to be included in the DDR auctions.

We believe that if channel 38 is included in the DDR auctions then the PMSE sector must retain access rights to this spectrum for as long as possible. Channel 38 is used by the PMSE sector for wireless microphones and in-ear monitor systems in a similar way to the rest of the interleaved spectrum. Indeed, the significant geographical availability of channel 38 for PMSE means that it should be useful for touring productions that



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need to be able to use the same equipment from venue to venue. In view of the interference protection requirements for radioastronomy in this band, it is unlikely that any new licensee, unless PMSE-aligned, will be able to deploy their services in channel 38 before it is cleared of radioastronomy. Therefore, it would have no value to evict PMSE from channel 38, as defined by not awarding access rights to the band manager, before this time.

If channel 38 is included in the DDR award, then we believe the technical licence conditions as apply to this band should be designed to facilitate PMSE (use with the corresponding interference-protection levels). We note that channel 38 may be of limited value to users who wish to deploy high-power services across the UK due to the continued protection of radioastronomy in Europe. If channel 38 is included in the DDR award, then it may be attractive to a potential band manager, particularly if it is auctioned as a distinct lot (as proposed in the DDR cleared consultation). Indeed, in light of the limitations of channel 38 for high-power services and its potential benefits to PMSE as a UK-wide band post clearance of radioastronomy (particularly touring productions), Ofcom should consider including channel 38 in the band manager award along with the interleaved spectrum and channel 69.

More generally, we believe that the technical licence conditions for the entirety of the cleared spectrum should be designed so as to facilitate PMSE use, potentially through and additional SUR. It may be the case that the new licensees of the cleared spectrum will be keen to provide access to PMSE, whether through the band manager or direct contact with PMSE users. For example, if a new digital television multiplex is deployed in the cleared spectrum then this is likely to create interleaved spectrum in which wireless microphones or other PMSE devices could be deployed. Ofcom should consider the implications of such a scenario for the band manager and PMSE as a whole, but also in light of their obligations to promote competition and efficiency. It may be the case that an alternative supplier of interleaved spectrum will offset the concerns associated with the band manager's monopoly position.

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

We note the telecommunications companies concerns in submissions to previous DDR award consultations with regard to the feasibility of operating two-way mobile services in the interleaved spectrum in channels 61 and 62. The interleaved spectrum in channels 61 and 62 would be, however, useful for PMSE applications such as wireless microphones and in-ear monitor systems. If DTT services are deployed in channels 61 and



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62 as currently planned, then the interleaved spectrum in channels 61 and 62 should be awarded to the band manager with PMSE obligations because this would doubtless increase interleaved spectrum availability for PMSE post-DSO. It seems that including this interleaved spectrum in the DDR auctions is more a symbolic rather than substantive step towards pan-European harmonisation for two-way mobile.

We also believe that the protection clauses enshrined in the technical licence conditions for the cleared spectrum should ensure that no undue interference is caused to PMSE users of interleaved spectrum and channel 69 as well as DTT. PMSE users must be protected from interference from new users of adjacent frequencies in the cleared spectrum, potentially through guard-bands. No degree of interference to PMSE devices is acceptable, particularly for professional productions. If such protection is not afforded, then this will limit the capacity of the interleaved spectrum and channel 69 for PMSE, and hence diminish the revenue base of the band manager as well as place constraints on productions.

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

Whilst we welcome Ofcom's proposal to alter the protection options for existing DTT services, we only do so because it may have the consequence of increasing the interleaved spectrum available for PMSE. When making this proposal, Ofcom balanced the potential expansion of coverage for new services associated with the geographic interleaved awards with the impact on existing DTT services but neglected the possible benefits for PMSE. Had Ofcom taken the potential benefits of increased interleaved spectrum availability for PMSE into account, they may have concluded that the DPSA rather than median option should be implemented.

Ofcom should now reassess their proposed approach for protecting the reception of DTT services further to a comparison between white space maps for the median and DPSA protection options (and hence to what extent the DPSA option would offer superior interleaved spectrum availability for PMSE). The white space maps for the DPSA and median protection options should be made available for public scrutiny. In addition, as PMSE applications emit RF at a much lower-power than digital television broadcasts, the DPSA option may be applied to PMSE whereas the median option apply to new digital television services (though this could be difficult to implement).



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***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?***

Yes.

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

Yes.

***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?***

Yes

***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 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?***

All new PMSE applications that emerge will merit protection from cognitive devices. Indeed, all licensed users of the interleaved spectrum (and hence the devices they deploy) should be afforded protection from interference from all other users (and hence all other devices that may be deployed, including 'cognitive' devices).

All PMSE users of the interleaved spectrum are entitled to expect that the spectrum for which they pay to use is interference-free, whatever device they use. Moreover, in light of the fact that no degree of interference is acceptable for PMSE productions, the band manager must be able to supply interference-free spectrum to PMSE as included in its obligation to meet 'reasonable' PMSE demand. If cognitive devices are



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permitted to operate in the interleaved spectrum without absolute guarantees that they do not interfere with all PMSE devices, then the band manager will be unable to meet reasonable PMSE demand in terms of spectrum quality due to factors outside of its control.

In addition, deployment of cognitive devices in the interleaved spectrum is likely to stifle the development of new PMSE and other technologies that use spectrum on a licensed basis.

***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?***

We believe that temporary PMSE access to the cleared spectrum should be extended UK-wide until after the Olympics in 2012 and apply to channels 31-40 as well as 63-68.

This will provide much-needed time for manufacturers to produce sufficient quantities of equipment capable of operating in the interleaved spectrum that will be available following the transition from analogue to digital terrestrial television broadcasting. In addition, it will provide PMSE users of the interleaved spectrum and rental companies with much-needed time to assess how the change in interleaved spectrum availability (which is a result of DSO) affects their business. It is likely that the majority of equipment that operates in the spectrum that interleaves between the analogue television broadcasts will not be able to operate in the spectrum that interleaves between digital television broadcasts due to the change in pattern of spectrum availability. This equipment will either be rendered redundant or require modification, hence the time required for affected businesses to address these equipment issues. Affected businesses must also be provided with more time to amortise the value of their existing equipment by allowing PMSE to continue to operate in the spectrum to be cleared of analogue television.

In addition, PMSE users, rental companies and manufacturers cannot be expected to adapt to the impact of DSO and migrate to new frequencies until they know which interleaved spectrum will be available to them subsequent to DSO and the DDR awards. Taking into account factors that include the geographic interleaved awards and alteration of DTT protection options, the interleaved spectrum to be awarded to the band manager and availability of it is still unclear.

The London 2012 Olympics is another factor that needs to be taken into account when considering temporary PMSE access to the cleared spectrum. In order to guarantee that sufficient quantities of PMSE



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equipment will be available to cater for the production and broadcasting requirements of the 2012 Games, PMSE access to the cleared spectrum must be retained UK-wide until after the Olympics have taken place. The further in advance PMSE access to the cleared spectrum is terminated (Ofcom's current plan is to release digital dividend spectrum as it becomes available on a regional basis), the earlier equipment that operates in the cleared spectrum will become redundant, the smaller the pool of equipment that operates in cleared spectrum will be. Ofcom have recognised that the cleared spectrum will be required to satisfy the production requirements of the Games, hence their proposal to delay release of these channels in London until after the Olympics have taken place. If they acknowledge that the cleared channels will be required for the production of the Olympics then they must ensure that sufficient quantities of equipment that operate in the cleared channels will exist to fulfill this requirement.

We also believe that the cost of extending UK-wide PMSE access to the cleared spectrum until after the Olympics in 2012 to potential providers of new services in the cleared spectrum may be low. The new licensees are likely to wish to deploy their services across the UK rather than regionally. This will not be possible until the cleared spectrum is released in London, which will be, under Ofcom's current proposals, after the Olympics in 2012. The argument that likely new licensees will not wish to deploy their services until this point is supported by the telecommunications companies' responses to the DDR cleared condoc. The telecommunications companies have shown considerable interest in the upper cleared band; therefore, if Ofcom are not willing to extend temporary PMSE access to the cleared spectrum as a whole until after the Olympics in 2012, they may consider a separate approach to the upper and lower cleared bands.

We believe that, in order to extend temporary PMSE access until after the Olympics in 2012, Ofcom would not have to delay the DDR auctions; they could include a licence condition which states that the rights of access to the cleared spectrum do not start until September 2012. The access rights to the cleared spectrum until this point could be included in the band manager award.

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

Yes

***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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Yes

***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?***

No.

A notice period of only one year for variation or revocation of bands on which the PMSE sector currently depends offers very little certainty of access for PMSE users operating in these bands. This uncertainty will discourage manufacturers from building equipment that operates in these bands and PMSE users and rental companies from investing in it. Without viable alternative low and no-demand frequencies, the insecurity of access for high-demand frequencies would result in considerable difficulties for the PMSE sector.

We note that the notice period of one year is designed to give users confidence that Ofcom will be able to intervene if the band manager fails to meet its obligations. Failing to meet obligations to PMSE can be the only justification for a difference in notice period between high and low-demand PMSE bands, since the extent of PMSE use is the only current distinction between these two categories. The band manager should have an appropriate dispute resolution process and be aligned with the PMSE sector, both of which should offset the likelihood of Ofcom's intervention for this reason. Taking these arguments into account, Ofcom should only be able to revoke or vary the licence for bands currently used for PMSE with one-year's notice if the band manager is failing to meet its obligations to PMSE; if Ofcom revokes or varies the licence for bands currently used for PMSE for any reason other than this, then the notice period must be the same or longer than that applied to bands with no current PMSE use.

***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?***

Yes



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

While the proposals for varying or revoking the band manager's licence during the notice period seem reasonable, the length of notice period for bands currently used for PMSE does not. Please see our response to question 17 for further views on this.

***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?***

Yes. This certainly includes the spectrum that interleaves/will interleave between digital television broadcasts into which current PMSE users of the spectrum that interleaves between analogue television broadcasts will have to migrate as soon as DSO occurs in each region and temporary access to the cleared spectrum is terminated.

***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; although we believe that Ofcom should fully and precisely explain what they mean by 'making more efficient use of spectrum', particularly in respect of PMSE use. When this criterion is fleshed out in the next stages of the consultation process, it should be acknowledged that the PMSE sector uses spectrum on a transient rather than constant basis and that what spectral efficiency means may differ between applications. In addition, there may be a tension between licensing spectrum in which PMSE operates for alternative uses and being able to meet reasonable PMSE demand due to the way in which the PMSE sector needs to access spectrum and the notice period it can provide for requiring such access.

Ofcom have proposed that applicants should demonstrate an appreciation of the issue of unauthorised spectrum access by PMSE users and plans for helping to address this. While we understand that there are numerous ways in which the band manager could encourage compliance and incentivise licensing, Ofcom should also help in this process by undertaking enforcement.

We believe that the band manager should be able to demonstrate close alignment with PMSE interests. It seems that this criterion has been diluted since the DDR statement of December last year.





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***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?***

Yes

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

Yes

***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?***

Broadly, yes. We note that Ofcom has stated that it would, in general, be likely to accept a request from the band manager to bring in SURs. When any such request is made, due consideration must be given to the band manager's obligations to the PMSE sector and whether SURs would further the interest of the PMSE sector.

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

Yes, but only in the sense that a combined AIP fee based on the opportunity cost for all bands to be awarded would restrict the band manager's flexibility.

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

If by 'comparable basis' Ofcom mean that a separate fee will be set for each MOD band, then yes.

***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?***

If Ofcom is committed to phasing in AIP to full opportunity cost for each band, then the process for calculating opportunity costs and AIP must be transparent and, as they are estimates, always be implemented as the lower-end estimate.



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We note that the underlying objective of phasing-in AIP to full opportunity cost is to help the PMSE sector to access spectrum via full market mechanisms. If this is to happen then the band manager must have a viable business model and be able to recoup AIP charges through licensing revenues, which must, in turn, increase as AIP increases. Therefore, we believe that Ofcom must undertake invigilation and enforcement of PMSE licensing to encourage PMSE users to access spectrum on a licensed basis.

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

As explained above, we believe that it will be difficult for the band manager to recoup AIP for bands with high opportunity cost without charging prices that the PMSE sector cannot afford or failing to meet its obligation to meet reasonable PMSE demand unless licensed use increases.

We agree that a longer phase-in period should apply where the AIP is very high compared to existing prices. This certainly applies to the interleaved spectrum, channel 69 and talkback channels in UHF I and II. With regard to the interleaved spectrum, the opportunity cost cannot be estimated until it is known which interleaved spectrum will be awarded to the band manager. Furthermore, the opportunity costs of the interleaved spectrum and channel 69 are likely to increase following the DDR auctions. The phase-in period for these bands should be extended to take this into account.

***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?***

We believe that a longer initial period would be more appropriate to enable the new arrangements to bed down and the PMSE sector adapt to the changes. After that, however, it may be the case that a more frequent review might be more appropriate, especially if it becomes clear that the levels of AIP that the band manager pays is higher than the opportunity cost of the spectrum.

***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?***

Broadly; although consideration must be given to the band manager's obligations to meet reasonable PMSE demand if a request is made to extend DTT platforms into the interleaved spectrum.



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

We believe that awarding spectrum to a single band manager with PMSE obligations is the best way of ensuring future PMSE spectrum access, particularly in light of the sector's inability to compete in the DDR auction process.

***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?***

While all prices charged to PMSE users should be FRND, satisfying 'reasonable' PMSE demand must also take the following factors into account;

- Quality of spectrum (i.e. no interference)
- Quantity of spectrum (i.e. requisite bandwidth)
- Duration of access
- Time of access
- Location of access
- Transient use
- Peak demand
- Relatively short notice period for access requirement
- Available equipment
- Standard of equipment

***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?***

We believe that while a licence condition may be required in case the band manager is uncooperative. However, in light of the band manager's obligations to PMSE and the commercial opportunity involved, we believe that this would be an unlikely scenario.



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

Broadly. We are concerned that the spectrum to be awarded to the band manager will be insufficient for the band manager to meet the spectrum demand for special events without drawing on additional spectrum.

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

Generally, although in view of concerns about a dominant spectrum supplier, Ofcom should explain how they intend to determine whether prices are higher than would otherwise be expected in a competitive market. We agree that the band manager's licence should be revoked if it is failing to fulfill its obligations to PMSE.

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

Yes.

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

Yes