



Response to Ofcom Consultation: Digital Dividend Review

Background

JFMG Ltd manages the spectrum allocated for use in programme making, entertainment, special events and related activities. JFMG coordinates the use of spectrum, issues licences and collects licence fees on behalf of Ofcom. JFMG has successfully managed spectrum for Ofcom (previously Radiocommunications Agency) since 1997. JFMG are a privately owned company created specifically to support the programme making and special events (PMSE) industry.

In the UK, the professional use of radio for programme making and entertainment purposes is referred to as Programme Making and Special Events (PMSE). PMSE applications include:-

- Broadcast television studio production
- Broadcast television and radio coverage of news, sport or other public events including state occasions
- Theatre and touring shows
- Music and other entertainment productions
- Conferences, and corporate presentations and events
- Movie film productions

Industry consultation

The spectrum between 470 – 862 MHz is the most heavily used by the PMSE industry, predominantly for wireless microphones. JFMG have therefore held an industry forum on Friday 26 January 2007 with a large number of those most heavily affected to gauge views on Ofcom's proposals. The information within this response was presented and discussed, and any additional views added as a result of the event.

Consultation questions

JFMG has responded only to questions relevant to the management of PMSE in UHF broadcasting spectrum:

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

The following provides a brief summary of JFMG's thoughts on the proposals put forward by Ofcom in the Digital Dividend Review executive summary. The responses to the remaining questions will provide further clarity with regard to our conclusions.

Individual uses

Wireless microphones for community use, and similar low power devices

JFMG agree with the proposal to continue making Channel 69 available for low power PMSE devices. We will support exemption of part of Channel 69 if the industry states that this is its preferred option. We would support the partitioning of the band with higher power, coordinated use being moved to the lower band edge, thus providing some protection for low power use from adjacent channel interference.

Wireless microphones for professional use, and similar low power devices

JFMG agrees that there should be transitional protection for professional users to ensure access to interleaved capacity until at least 2012. However, we believe that additional protection for Channel 36,

67 and 68 until 2012 should also be considered to further ease the transition within the whole of the UK. We believe a number of issues concerning PMSE use could lead to a market failure if an auction goes ahead in 2008. JFMG would propose that if Ofcom decide to go ahead with an auction in interleaved spectrum that it be postponed until 2010 to enable the industry to investigate coordinating a bid within a more stable PMSE spectrum management environment. JFMG would ask Ofcom to consider adopting alternative market methods to encourage efficient use of the digital interleaved spectrum.

Local television

JFMG agree with Ofcom's proposal to package the digital interleaved spectrum in a way that would be suitable for use by local television services. We also agree that the spectrum should not be reserved solely for this use.

Timing

JFMG support auctions of cleared spectrum and local TV packages within digital interleaved spectrum in 2008. However we would like to propose that Channel 36, 67 and 68 within cleared spectrum continue to be protected throughout the UK until at least 2012 to ease the PMSE transition. We would also like to propose that if an auction of the remaining digital interleaved is unavoidable, that it be postponed until 2010. JFMG would support the selection of an interim band manager to fill the PMSE spectrum management gaps through the transition.

Spectrum requirements and packaging

JFMG do not have any strong views on the packaging options identified for cleared spectrum. However our initial preferences would be for options iv, v and vi as detailed in the executive summary.

JFMG are not yet clear what packaging would be the most appropriate for the interleaved spectrum. However we support the suggestion of introducing 50 -100 packages for local television services.

Usage rights and obligations

JFMG agree with the non-technical terms of the licences to be awarded for use of the UHF spectrum. It is noted that Ofcom proposes to make some interleaved capacity available for PMSE services, and this will consist of obligations within the licences won at auction in 2008/2009. However the proposals do not indicate what capacity within digital interleaved spectrum will be made available for PMSE services.

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

Interleaved spectrum usage

JFMG agrees with Ofcom's analysis that the most suitable services for digital interleaved spectrum are PMSE and possibly, local television. Given the requirement to protect broadcasting, the options for service deployment would most certainly be limited. High power use is generally only feasible at a few sites and typically must be co-located with the broadcast transmitter site. Even then it will be subject to restrictions on the direction of the signal. Interleaved spectrum is best suited to low power use such as wireless microphones.

JFMG has successfully facilitated PMSE access to analogue interleaved spectrum since 1997. Our in-house tools and geographic information systems enable the safe use of a wide range of applications including wireless microphones within interleaved spectrum. The service to programme makers is now further enhanced by the launch of our interactive on-line tool which enables them to determine which frequencies are compatible with TV broadcasting at any location and to coordinate with other PMSE users.

PMSE migration out of analogue interleaved spectrum into the digital interleaved during the Digital Switchover transition will need to be carefully managed to ensure protection for DTT. Procurement of the necessary skills and tools to facilitate this process should therefore be considered carefully.

Digital self-help schemes

PMSE currently has priority over new analogue self-help schemes. We would suggest therefore that this priority continues whilst PMSE still has access to the digital interleaved spectrum.

Cleared spectrum usage

JFMG would like to highlight that although Channel 36 is noted as currently being used for one radar it is also used heavily by PMSE. Over 2000 assignments have been issued in the 8 MHz block in the past two years. Usage consists of both short-term and annual use all over the UK, the most prominent uses being in theatres (both West-End and regional), stadiums, exhibition centres and TV studios.

Whilst we accept Ofcom's decision to treat Channel 36 as cleared spectrum, we would like to ensure that every effort is made to inform these licensees of the progress made to change its use at an international level. In addition, we would ask Ofcom to consider protecting access to Channel 36 until at least 2012, in line with the proposals we put forward regarding use of Channel 67 and 68 later in this response.

PMSE users also currently share Channel 38 with radio astronomy. The spectrum is available in London and so could prove invaluable for the 2012 Olympic Games. We notice that although the Digital Dividend Review makes it clear that Channel 38 will not be subject to auction in the near future, it does not state how continued use for PMSE will be enabled after the end of the current JFMG contract in September 2008. JFMG would be interested in Ofcom's thoughts on this subject.

JFMG would like to see that licences issued in cleared spectrum provide sufficient protection against interference for future local TV and PMSE use in adjacent digital interleaved spectrum.

Channel 69

We would like to suggest that use in Channel 69, whether licence-exempt or not, is protected from adjacent channel interference by new high-density or mobile services in Channel 68. This would require sufficient guard bands to be implemented within the newly acquired spectrum, and/or moving coordinated PMSE high power use in 69 to the lower band edge. Retaining coordinated, high power use in Channel 69 could then act as a buffer between the new service and low power wireless microphones.

Summary – JFMG agree that the digital interleaved spectrum is most suited to PMSE and possibly, local television use. We would be interested in Ofcom's views on the current priority given to PMSE when considering self-help applications and the plans for managing the continued PMSE requirement in Channel 38. JFMG would like to see that the licence conditions for new uses provide sufficient protection for PMSE use in adjacent interleaved spectrum and Channel 69.

Questions 3) & 4): N/A

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?

JFMG supports the principles outlined within Ofcom's analysis of market-led and interventionist approaches. We also agree that intervention is sometimes necessary to avoid a market failure. We believe the PMSE industry is a case in point. Intervention regarding Channel 69 and possibly digital

interleaved spectrum will be required to ensure the industry continues to prosper. Without access to these channels, and no alternative spectrum identified, the PMSE industry could fail.

Question 6): Do you agree with our proposals to continue making Channel 69 for 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?

Continued access to Channel 69

JFMG agree with Ofcom’s proposal to continue making Channel 69 available for low power PMSE devices. Channel 69 accounts for a large amount of wireless microphone use, the removal of which would cause considerable problems for the industry. It is currently the only spectrum with primary PMSE use. It is also available UK wide so ensures that freelancers and touring companies can use their equipment wherever they go without having to re-equip.

We also fully support Ofcom’s deduction that the number and variety of users would make it impossible for them to bid at auction and would therefore lead to market failure.

Licence exemption

We believe that we are not best placed to say whether the exemption of Channel 69 is preferable to the current situation. It is for the industry as a whole to decide. JFMG do not hold significant objections to exemption if this is indeed what the majority of users want. We have therefore worked to ensure that the industry are aware of the pro’s and cons of exemption and provided them with sufficient information to make an informed decision. What follows is a discussion around this information.

Ofcom’s proposal to exempt is based on the premise that most licensees have what is called a UHF Shared Wireless Microphone licence. This allows shared access to 14 channels throughout the UK, and so can already be seen to be lightly licensed. A move to full exemption would therefore seem a logical step. However, only 14 specified wireless microphone frequencies within Channel 69 are designated for this kind of use. The remaining spectrum (65%) is managed on a coordinated basis for professional wireless microphones, in-ear monitors and other PMSE applications. These include higher power (up to 25W) links carrying programme content. It is not clear how these users would be dealt with in the light of exemption. Figure 1 illustrates the current allocation of Channel 69 spectrum in full.

Figure1: Channel 69 spectrum

Current Channel 69 Partitioning					
Licence Type	Use	Power	Quality of Service	Allocated Spectrum (MHz)	% of Channel 69
Annual UK Wide	Wireless Mics/ Monitors	Low	Uncoordinated	2.8MHz	35%
Annual Fixed Site Or Temp	Wireless Mics/ Monitors and Audio Links*	Low/High	Coordinated	3.85MHz	48%
Temp only	Audio Links only*	High	Coordinated	1.35MHz	17%
			Total	8MHz	100%

* Studio to transmitter links, portable links

In addition, there is also considerable reference to the extensive community use of Channel 69 shared wireless microphones. However, our records show that there are also a considerable number of professional users making use of the licence. It seems clear that exemption would be of more interest to community users as opposed to professionals. The table in Figure 2 shows a brief breakdown of current shared wireless microphone licensees based on an analysis of the JFMG database.

Figure 2: Shared Wireless Microphone licensees

Profile of Annual UK Wide Licensees	
User	Volume of Licences
Freelance Sound Recordists/Cameramen	25%
Hire Companies	17%
Education	10%
Theatres	9%
Conference/Studio/Venues	7%
Broadcasters	6%
Religious	4%
Other (including Corporate, Local Govt, Manufacturers)	22%
Total	100%

At our recent PMSE Forum on the Digital Dividend Review we presented the following pro's and cons to stimulate debate and inform decisions. The list was by no means exhaustive, but encouraged delegates to think carefully about exactly what exemption would mean for them. The table in Figure 3 provides a summary of what was presented.

Figure 3: Pro's and con's of Channel 69 exemption

Channel 69 Exemption	
For	Against
Its free for users	Open to all-comers without priority including professional, amateur and consumer alike.
No administration costs for regulator	Potential influx of technically and operationally similar consumer applications – “thin edge of the wedge”
No barrier to sales for manufacturers	No defined security of tenure as there is for paid-for spectrum
Increased sales volume for manufacturers may reduce equipment costs to users	Increased use may increase risk of interference
Reflects widespread unlicensed use	Loss of coordinated channels means a greater risk of interference at major events
Provides more capacity for low power wireless microphones	Licensed users have priority for interference resolution
Reflects widespread unlicensed use	More likely to be used as convenient test-bed spectrum by emerging (non-PMSE) technologies
	Inconsistent with regime for VHF shared frequencies

In addition to the pro's and con's, alternative models for dealing with Channel 69 were presented, including the current model, free on-line licensing and exemption. Out of the 47 attendees no-one when asked showed support for exemption. The main reason cited was a major concern regarding an increase in interference.

Partitioning

Given that 65% of Channel 69 is currently coordinated and includes high power, JFMG would support partitioning of the band to allow the continuation of these uses. We would suggest that the coordinated frequencies be corralled into the lower band edge of Channel 69. This would allow for the band manager to coordinate assignments with reference to adjacent channel considerations. It is likely that these higher power and coordinated uses could be assigned so that new services in the adjacent band would not cause undue interference to them. This positioning would also provide additional protection to the remaining low power Channel 69 spectrum, regardless of whether it remains light licensed or is exempted.

Summary – JFMG agree with the proposal to continue making Channel 69 available for low power PMSE devices. We will support exemption of part of Channel 69 if the industry states that this is its preferred option. We would support the partitioning of the band with higher power, coordinated use being moved to the lower band edge, thus providing some protection for low power use from adjacent channel interference.

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 mechanisms for providing future access to this spectrum?*

Transitional protection

JFMG agrees that there should be transitional protection for professional users to ensure access to interleaved capacity until at least 2012. However, the timetable for PMSE migration out of the current interleaved spectrum creates a number of issues.

No-one can deny that migrating out of analogue interleaved spectrum in line with the DSO timetable is preferable to vacating the spectrum prior to auction in 2008. It ensures optimum use of the spectrum during the transition and in some cases smoothes the process for PMSE users. Adopting this approach to migration does however appear to be London centric, and perhaps focusing specifically on provisions for the 2012 Games. DSO begins in the Border region at the end of 2008/beginning of 2009, meaning that licensees will need to vacate three years earlier than those in London and Northern Ireland.

JFMG acknowledges that the Border region has little PMSE use; however the same cannot be said of the Granada region which is scheduled to switch in 2009. In this example PMSE users could be required to reinvest in kit/retune equipment twice (once in 2009 to migrate into digital interleaved spectrum and again in 2012) if access to digital interleaved spectrum is not secured after switchover. There will only be a single requirement for those in London.

With spectrum efficiency in mind JFMG understand that it may not be feasible for Ofcom to delay all migration out of the analogue interleaved spectrum until 2012; especially if spectrum has been bought at auction in 2008. However we would suggest that some additional protection be provided for the channels most heavily used by the industry. We believe, with reference to both the industry and the Sagentia report commissioned by Ofcom, that Channel 67 (838 – 846 MHz) and Channel 68 (846 – 854 MHz) are where the majority of UHF wireless microphones are tuned. Microphones typically tune over 3 channels and manufacturers therefore produce equipment that covers channels 67 through to 69 to ensure maximum flexibility for the user.

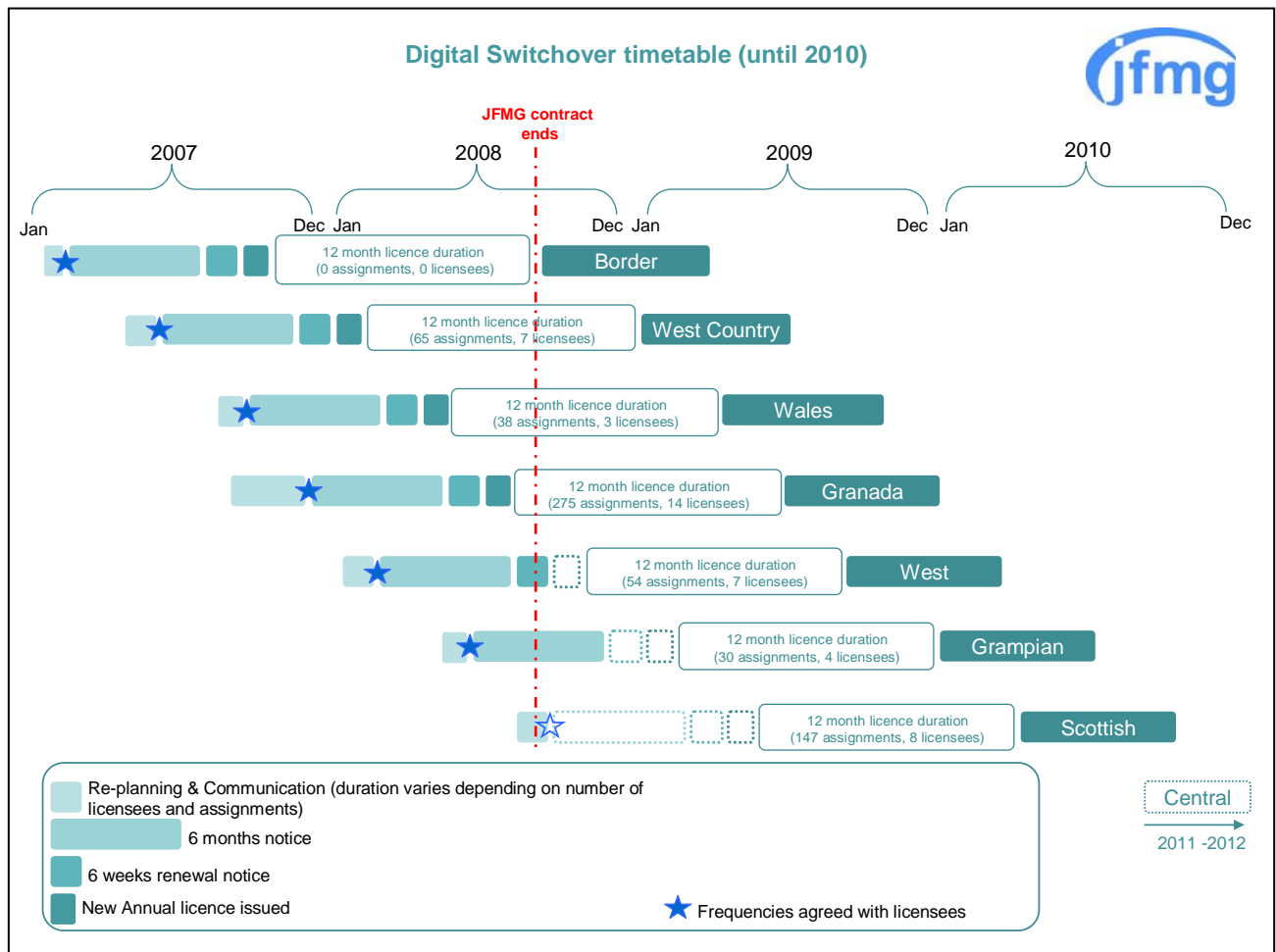
We believe that introducing additional protection until at least 2012 to Channel 67 and 68 regardless of region would ease the impact to PMSE users throughout the UK. Whilst there would still be some disparity for those who use the remaining analogue interleaved, we believe that this would significantly reduce the amount of retuning/re-equipping required, because of the scale of use in these channels.

In addition, we believe that Ofcom should also consider protecting PMSE use of Channel 36 until at least 2012. It is currently used heavily because it is not used for broadcasting in the UK and there is

only one area (where the single radar is located) where PMSE cannot use it. Protection within this band would again reduce the amount of retuning required

Regardless of the approach adopted by Ofcom it is clear that the processes to ensure a smooth PMSE transition requires careful analysis and management. A migration programme will need to be adopted to ensure that those who need to vacate analogue interleaved spectrum are notified and advised of the alternatives available to them, whether it be digital interleaved or Channel 69. We believe that planning and communication with licensees needs to start now. The graphic in Figure 4 shows what we believe to be the timescales for an effective migration process.

Figure 4: DSO timetable



Also, co-ordination of PMSE use within all of the digital interleaved spectrum will be required to ensure that there is sufficient capacity for all during the period 2008 – 2012. Although Ofcom may see this as a responsibility of the winner(s) of the auction of digital interleaved spectrum this is unlikely to be a satisfactory result. The service to be provided to PMSE users would have to be clearly defined in each licence issued as a result of the auction and monitored closely to ensure that PMSE users are supported.

Management and protection of Channel 38 will also need to be considered.

JFMG has successfully facilitated PMSE access to analogue interleaved spectrum since 1997. Our in-house tools and geographic information systems enable the safe use of a wide range of applications including wireless microphones within interleaved spectrum, and could continue to do so during DSO. We have already submitted a proposal to Ofcom regarding this process and would be happy discuss the provision of such a service in the future.

Mechanisms for future access

Whilst we agree to some extent that auctions are a good way for allocating spectrum, we have some reservations about it being employed for the interleaved. The following highlights the issues that we think are the most important to consider.

Coordinating a bid

There are indeed fewer users within interleaved spectrum than in Channel 69. However it could be argued that with 600 licensees accounting for 32,000 separate frequency assignments, intervention may also be required to avoid market failure. The majority of licensees will not be in a financial position to bid for 8 MHz slots at auction in isolation. Many will also need access to more than one channel. Therefore success for PMSE users will rely heavily on their ability to aggregate a bid, or for a spectrum manager to act on their behalf.

JFMG's records show that 80% of all assignments in interleaved spectrum are attributable to 100 licensees, with 50% being used by just 20. Although this would not appear to be an insurmountable number, many have differing agenda's and are often competing against each other for business. The licensees who use this spectrum also vary from commercial hirers to Public Service Broadcasters, and it is often, as we have found, difficult for them to find common ground. In addition, from our dealings with industry representatives it seems clear that they envisage insurmountable obstacles blocking a coordinated approach. Even the larger organisations have expressed doubt that they would be able to secure access to finance. In some cases, their own contractual arrangements are often relatively short-term. Even if the larger players were able to coordinate a bid, there would still be a considerable number of users unable to secure access to spectrum.

Whilst JFMG recognise the value of the secondary market to secure spectrum access, there are no guarantees that this will be possible for PMSE users after 2012. If PMSE users fail to coordinate a bid or indeed fail to secure spectrum via an auction there would currently be no-where else for them to go. In addition it is unclear whether manufacturers are likely to invest in producing increased numbers of equipment for use within the digital interleaved spectrum if there is no guarantee that they will be usable after 2012.

Interleaved capacity and value

Problems occur for PMSE users as they are currently unaware of what the digital interleaved spectrum will look like in terms of capacity and coverage. This further exacerbates their ability to determine the value of the spectrum at auction. Analysis can be drawn from previous spectrum auctions, but they draw little comparison to the interleaved use in quality, quantity, restrictions and geography. Administrative Incentive Pricing (AIP) could also be used to establish the market value of spectrum, but no analysis of this spectrum or similar was included in the Indepen report. Without this information it is difficult to determine how much to bid at auction and therefore produce a viable business case.

Timing

We believe that the timing of the auction at the end of 2008 further inhibits the PMSE industry's ability to coordinate a bid. If we take for granted that the industry could resolve the issues we have already mentioned, other PMSE spectrum management concerns may dilute licensees ability to concentrate on this issue. The current JFMG contract expires at the end of September 2008 and we understand that Ofcom is likely to consult on the future management of the PMSE spectrum this year to gain views on what should happen thereafter. If a subsequent policy decision results in a significant change in the management of the other PMSE spectrum, this will certainly make it difficult for large users of other spectrum (and JFMG) to participate in an auction.

JFMG would propose that if Ofcom decides that an auction of interleaved spectrum is necessary then it is postponed until 2010. This would ensure the resolution of a number of issues:

- All other PMSE spectrum questions will have been resolved with some certainty, allowing those who it affected to fully concentrate on participating in an auction.
- A full analysis of whether the industry could come together to coordinate a bid/bids can be carried out to avoid market failure.

- Completion of, and possible participation in further spectrum auctions will inform the interleaved spectrum's value
- Greater understanding of digital interleaved capacity and coverage

Market methods

JFMG would like to reiterate that we agree that auctions can be an effective mechanism for securing efficient use of the electromagnetic spectrum, especially within unused/unallocated bands. However, wireless microphone licensees have relied on the UHF TV band for some 30 years, and have nowhere else to go if they fail to secure spectrum at auction. We therefore believe that other market methods could be better suited to providing access to this spectrum in the future, ones that will not lead to market failure, but that still encourage spectrum efficiency.

Ofcom could award spectrum rights to PMSE users, via individual annual licenses and/or to a band manager. Spectrum Rights would then become consistent with other Ofcom licences such as Business Radio and include trading and liberalisation clauses within their terms and conditions. The licensee/band manager would then pay AIP to Ofcom. The implementation of AIP would ensure that users were paying the market rate, thus encouraging spectrum efficiency. Prices would be such that it would incentivise licensees to only use what they could afford/what was absolutely vital for their day to day needs. Trading and liberalisation terms would ensure that unused/unwanted spectrum could be released to the market for other PMSE users or indeed for different uses entirely.

Summary – JFMG agrees that there should be transitional protection for professional users to ensure access to interleaved capacity until at least 2012. However, we believe that additional protection for Channel 36, 67 and 68 until 2012 should also be considered to further ease the transition within the whole of the UK. We believe a number of issues concerning PMSE use could lead to a market failure if an auction goes ahead in 2008. JFMG would propose that if Ofcom decide to go ahead with an auction in interleaved spectrum that it be postponed until 2010 to enable the industry to investigate coordinating a bid within a more stable PMSE spectrum management environment. JFMG would ask Ofcom to consider adopting alternative market methods to encourage efficient use of the digital interleaved spectrum.

Questions 8) & 9): N/A

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?

JFMG agree with Ofcom's proposal to package the interleaved spectrum in a way that would be suitable for use by local television services.

Local television compatibility

JFMG agrees that programme makers are likely to be able to coexist with local television services. Although this would invariably mean a reduction in available interleaved spectrum overall for PMSE, we do not believe that it would harm capacity and geographical availability significantly. Indeed the 50 – 100 lots proposed for local television could also be used for PMSE services that are located in fixed locations throughout the country such as West End theatre or studio complexes.

Reserving spectrum

We also agree that the spectrum should not be reserved solely for local TV use as the digital interleaved spectrum is vital for programme making. As we have stated previously, PMSE have been utilising the "white space" created by broadcasting for many years. Facilitating exclusive access to new services whilst excluding the "incumbent" would therefore appear untenable. It is also unclear at this stage how wide-spread and popular local television will be in the future. Therefore any reservation of spectrum solely for this purpose could lead to regulatory failure and the inefficient use of a scarce resource. In addition, geographical restrictions should result in lower auction value compared to cleared spectrum and would therefore not preclude local TV from competing for digital interleaved.

Summary – JFMG agree with Ofcom’s proposal to package the interleaved spectrum in a way that would be suitable for use by local television services. We also agree that the spectrum should not be reserved solely for this use.

Questions 11) & 12): N/A

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

JFMG believe that Ofcom have included the most material risks in their analysis of potential market failure. We have some anxiety regarding some of the conclusions as a result of this analysis, which we will briefly outline here.

We believe that Ofcom’s analysis regarding the risk of market failure with regard Channel 69 is correct. It would undoubtedly be impossible for so many users to coordinate to take part in an auction. Therefore in this instance regulatory intervention of some type would seem the most sensible approach to take.

JFMG also agree with Ofcom’s analysis that some form of intervention is required to ease the transition for PMSE users of interleaved spectrum until at least 2012. However it may be that this intervention does not go far enough on its own. Firstly the timing of the proposed auction in 2008 could mean that PMSE users are not in a position to bid. Further details regarding this subject are contained within our response to Questions 7 and 15, but possible changes in the way the remaining PMSE spectrum is managed, could hinder participation. Secondly, we feel that the argument for removing the possibility of an auction in Channel 69 could also be applied to PMSE use in the remaining spectrum, especially the digital interleaved. Whilst we concede that there are fewer users of the interleaved spectrum than in Channel 69, the diversity of those users is such that coordinating a bid may well prove difficult (refer to Question 7 for further clarification).

Summary – JFMG believe that Ofcom have included the most material risks in their analysis of potential market failure. However we have some anxiety regarding some of the conclusions as a result of this analysis.

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

JFMG recognise the validity of auctions as a mechanism for awarding spectrum and ensuring its efficient use, and believe it is particularly affective when allocating so-called “green field” spectrum. Strictly speaking however the UHF TV band is not “clear”. PMSE have been sharing this spectrum with broadcasting for decades. Whilst we recognise that Ofcom has a duty to release the so-called “cleared” spectrum to the market, it is not under any obligation to do the same with the digital interleaved. JFMG believe that a spectrum auction is more than likely the most appropriate way of releasing the cleared spectrum to the market. However we are not so sure that it would be the most effective and reliable way for all of the digital interleaved. JFMG feel that it would be appropriate to release the 50-100 local TV lots of digital interleaved spectrum for auction, as this would enable a new compatible user access.

Whilst we appreciate the view that the digital interleaved spectrum has a number of restrictions making it less attractive, and therefore more affordable for programme makers, we still believe there is a risk of market failure if an auction for all of it goes ahead as proposed.

To save repetitiveness, “Mechanisms for access” within our response to Question 7 fully details the thinking behind why we believe a different approach should be taken when dealing with the digital interleaved spectrum. It outlines the problems the industry could have with coordinating a bid, valuing the spectrum and the timing of the proposed auction. These factors could lead to a market failure.

JFMG believe that other market methods could be better suited to providing access to digital interleaved spectrum in the future. For instance Ofcom could award spectrum rights to PMSE users, via individual annual licenses and/or to a band manager. Spectrum Rights would then become consistent with other Ofcom licences such as Business Radio and include trading and liberalisation clauses within their terms and conditions. The licensee/band manager would then pay AIP to Ofcom. The implementation of AIP would ensure that users were paying the market rate, thus encouraging spectrum efficiency. Prices would be such that it would incentivise licensees to only use what they could afford/what was absolutely vital for their day to day needs. Trading and liberalisation terms would ensure that unused/unwanted spectrum could be released to the market for other PMSE users or indeed for different uses entirely.

Summary – JFMG support the proposal to auction licences in cleared spectrum as well as the 50 – 100 local TV lots within the digital interleaved. However we believe a number of issues concerning PMSE use could lead to a market failure if an auction for the rest of digital interleaved spectrum goes ahead in 2008. JFMG would ask Ofcom to consider adopting alternative market methods to encourage efficient use of the remaining digital interleaved spectrum.

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?*

JFMG support Ofcom's proposal to auction some, but not all of the Digital Dividend spectrum at the end of 2008. We agree that the cleared spectrum auction should go ahead as proposed, but with some additional protection for Channel 36, 67 and 68 until at least 2012. JFMG would also support the auction of the 50 – 100 TV lots within digital interleaved spectrum at 2008. However we would ask Ofcom to consider postponing the remaining digital interleaved spectrum auction until 2010. The following text outlines the rationales behind these proposals, most of which have been outlined in some detail in our response to previous questions.

PMSE migration timing (Channel 36, 67 & 68)

Migrating PMSE out of analogue interleaved spectrum in line with the DSO timetable is obviously preferable to vacating the spectrum prior to auction in 2008. However this approach disadvantages those located in a region that switches to digital earlier in the timetable. DSO begins in the Border region at the end of 2008/beginning of 2009, meaning that licensees will need to vacate three years earlier than those in London and Northern Ireland. JFMG acknowledges that the Border region has little PMSE use; however the same cannot be said of the Granada region which is scheduled to switch in 2009. In this example PMSE users could be required to reinvest in kit/retune equipment twice (once in 2009 to migrate into digital interleaved spectrum and again in 2012) if access to digital interleaved spectrum is not secured after switchover. There will only be a single requirement for those in London and Northern Ireland.

JFMG would suggest that introducing additional protection until at least 2012 to Channel 67 and 68 regardless of region would ease the impact to PMSE users throughout the UK and nullify the inequality. As mentioned previously, evidence suggests that Channel 67 (838 – 846 MHz) and Channel 68 (846 – 854 MHz) are where the majority of UHF wireless microphones are tuned. Allowing prolonged access to these channels would therefore significantly reduce the amount of retuning/re-equipping required, because of the scale of use in these channels. We acknowledge that this would not completely eradicate the inequality as users of the other channels would still need to migrate in line with the DSO timetable, but it would certainly reduce the problem.

In addition, we believe that Ofcom should also consider protecting PMSE use of Channel 36 until at least 2012. It is currently used heavily because it is not used for broadcasting in the UK and there is only one area (where the single radar is located) where PMSE cannot use it. Protection within this band would again reduce the amount of retuning required.



Support of local TV lots at end 2008

JFMG would support an auction of the 50 – 100 TV lots proposed by Ofcom at the end of 2008. These lots could provide the industry with an opportunity to test the market by competing in an auction. It would also further inform the industry on the perceived value of digital interleaved spectrum.

Postponement of an auction for digital interleaved spectrum until 2010

We believe that the timing of the auction at the end of 2008 inhibits the PMSE industry's ability to coordinate a bid for digital interleaved spectrum. It seems unlikely from our discussions that it would be feasible to coordinate a bid by the end of 2008. In addition other PMSE spectrum management concerns may dilute licensees' ability to concentrate on this issue. The current JFMG contract expires at the end of September 2008 and we understand that Ofcom is likely to consult on the future management of the PMSE spectrum this year to gain views on what should happen thereafter. If a subsequent policy decision results in a significant change in the management of the other PMSE spectrum, this will certainly make it difficult for large users of other spectrum (and JFMG) to participate in an auction.

JFMG would propose that if Ofcom decides that an auction of interleaved spectrum is necessary then it is postponed until 2010. This would ensure the resolution of a number of issues:

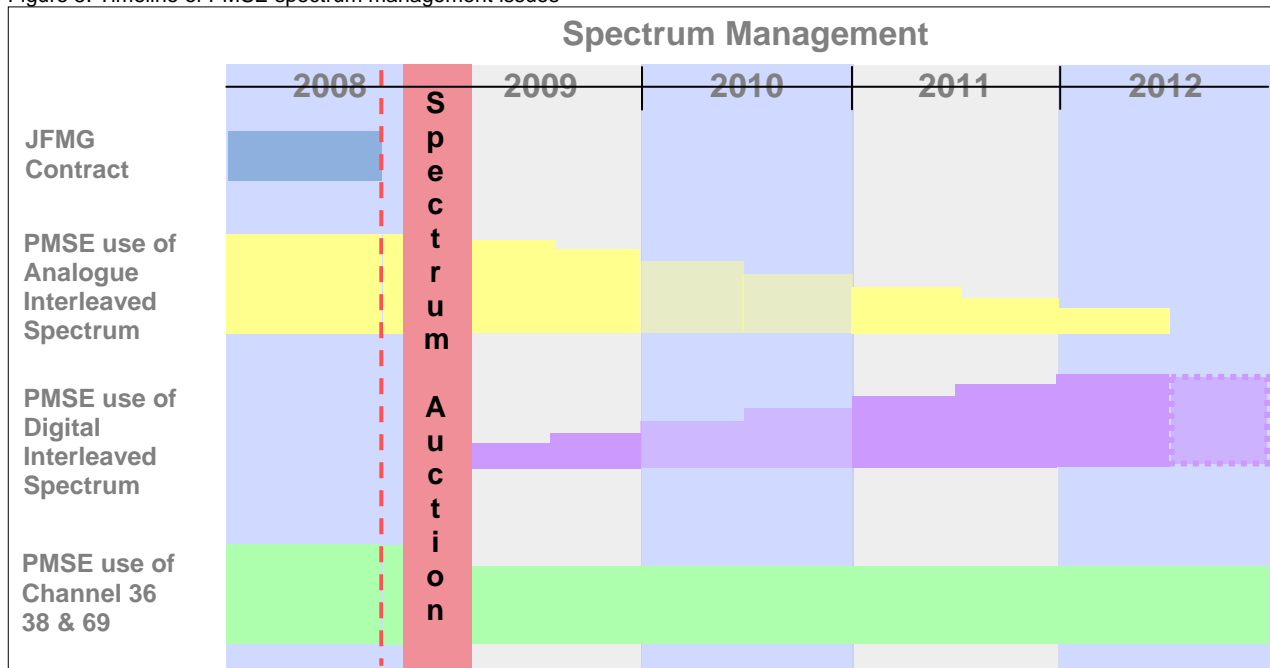
- All other PMSE spectrum questions will have been resolved with some certainty, allowing those who it affected to fully concentrate on participating in an auction.
- A full analysis of whether the industry could come together to coordinate a bid/bids can be carried out to avoid market failure.
- Completion of, and possible participation in further spectrum auctions will inform the interleaved spectrum's value
- Greater understanding of digital interleaved capacity and coverage

Migration management and support requirements

The proposed award of available spectrum in late 2008 or early 2009 leaves a potential discontinuity in the spectrum management arrangements for PMSE. This is because the current arrangement where Ofcom delegates the coordination and licensing of PMSE users expires in September 2008. Furthermore, this gap occurs at a time when the digital TV switchover programme will be underway.

The timeline in Figure 5 shows the current timing proposed by Ofcom and illustrates the gaps in PMSE spectrum management that occur within it.

Figure 5: Timeline of PMSE spectrum management issues

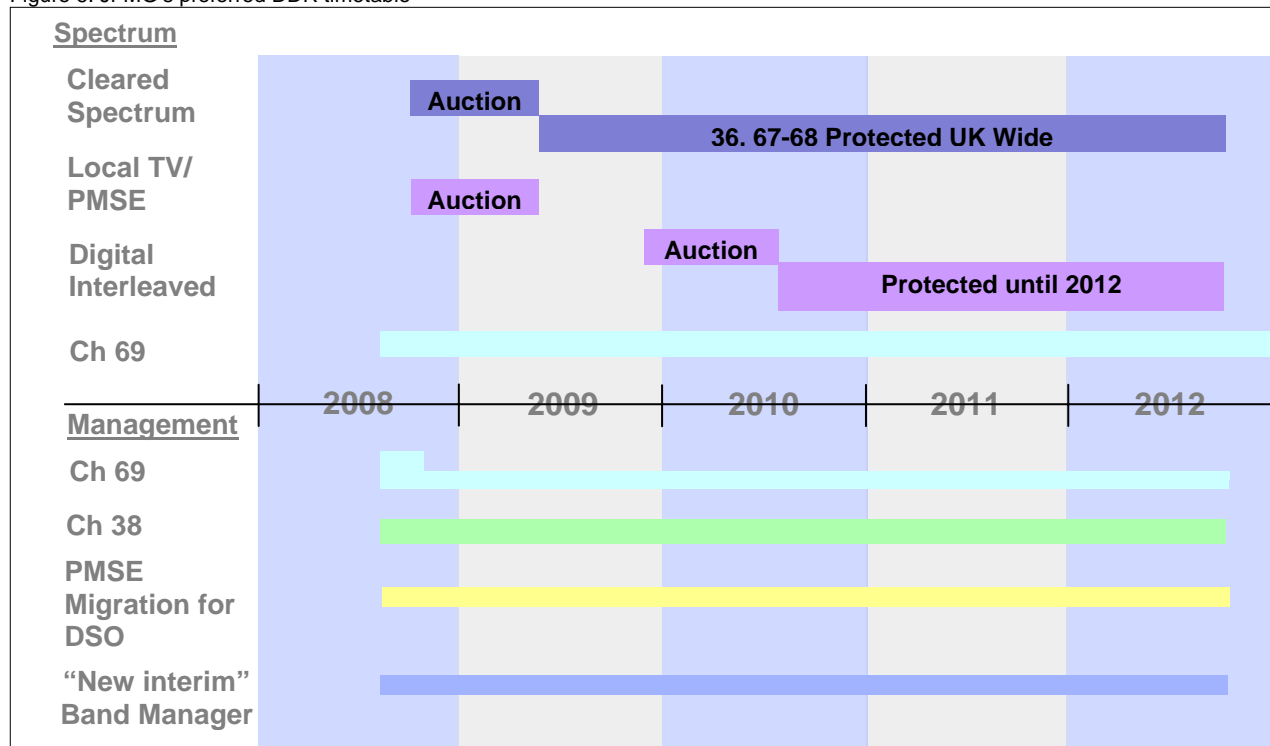


Regardless of the approach adopted by Ofcom it is clear that the processes to ensure a smooth PMSE transition requires careful analysis and management. A migration programme will need to be adopted to ensure that those who need to vacate analogue interleaved spectrum are notified and advised of the alternatives available to them, whether it be digital interleaved or Channel 69. Coordination of spectrum within the digital interleaved will be required to ensure that there is sufficient capacity for all during the period 2008 – 2012. Management and protection of Channel 38 will also need to be considered, and if Ofcom were to adopt our proposals for Channel 36, 67, 68 and 69 there would also be a continuing requirement.

We believe that an interim band manager would be the best solution to cover these aspects during the transition period. Ofcom’s arrangement could well be different to the current one with JFMG. A process could be initiated where the band managers bid (based on AIP) to gain the right to issue licences on Ofcom’s behalf. The licence revenue would then be collected and retained by the organisation instead of being passed onto Ofcom. This would save considerable administrative costs for Ofcom and would be a further step towards a commercial approach for PMSE spectrum management.

The diagram in Figure 6 illustrates JFMG’s suggested changes to Ofcom’s timetable for DDR spectrum.

Figure 6: JFMG's preferred DDR timetable



Summary – JFMG support auctions of cleared spectrum and local TV packages within digital interleaved spectrum in 2008. However we would like to propose that Channel 36, 67 and 68 within cleared spectrum continue to be protected throughout the UK until at least 2012 to ease the PMSE transition. We would also like to propose that if an auction of the remaining digital interleaved is unavoidable, that it be postponed until 2010. JFMG would support the selection of an interim band manager to fill the PMSE spectrum management gaps through the transition.

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

JFMG do not have any strong views on the packaging options identified for cleared spectrum. However we would agree that a single lot would be disadvantageous to many potential bidders and so should be avoided. Our initial preferences would be for the following options: the 4 lot option where there are lots for channels 39 – 40 and 66 – 68, 5 lots or 15 x 8 MHz channels. If a PMSE representative were in a position to bid, 39 – 40 could be a viable option, the protection issues surrounding the current use of channel 38 may mean these channels are less attractive to other users. In addition the option to bid for channels 66 – 68 (where the majority of PMSE equipment is situated) would also be attractive for a PMSE bidder with deep enough pockets.

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

Until the detailed channel-by-channel geographic availability of digital interleaved spectrum is known, it is not possible to be clear what packaging would be the most appropriate. Many PMSE users need access to spectrum nationwide so any packaging proposals would need to address this requirement.

If two lots are to be offered then further work is needed to determine to what extent each of the two suggested bands (channels 21-30 and channels 41-62) provides capacity across the UK. Also, as each of these bands exceeds the typical frequency operating range of wireless microphones it will be essential to understand if subsets of these bands can provide useful geographic coverage. Further,



this technical constraint is likely to limit the intended objective of competition and choice since equipment operating in one band could not be used in the other.

Whilst the three-lot option appears to give a better balance in the allocation of available spectrum, again this needs to be explored by detailed analysis of the overall geographic availability for practical use of each lot.

Offering just one package ensures there are few boundary issues to consider for the successful applicant; however it creates an “all or nothing” scenario for the PMSE industry. The only way this could be successful would be for an industry owned band manager to win, thus ensuring access for all PMSE users in the future.

The other two options create more potential for boundary issues to occur and creates the need to coordinate use between different spectrum owners. But they do allow for multiple bidders, encouraging competition and the likelihood that some spectrum could be secured by PMSE users.

We support the suggestion of introducing 50 -100 packages for local television services. These proposed licences at main transmitter sites need to be flexible so that PMSE users could potentially use them to provide additional capacity in areas (such as London's West End) where the nationwide packages may not be sufficient.

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

JFMG currently have no detailed views on the auction design options highlighted within the Digital Dividend Review. We will look to comment fully once the full Auction and Design Consultation document is published mid-2007.

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?*

JFMG agree with the non-technical terms of the licences to be awarded for use of the UHF spectrum. It is noted that Ofcom proposes to make some interleaved capacity available for PMSE services, and this will consist of obligations within the licences won at auction in 2008/2009. However the proposals do not indicate what capacity within digital interleaved spectrum will be made available for PMSE services.

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

JFMG have no comments to make on the Impact Assessment.