



## Response to Ofcom Consultation: Spectrum Framework 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.

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

### Consultation Questions

JFMG has responded only to those questions considered relevant to PMSE sector:

*Q1: Are there any other major medium-to-long-term spectrum management issues that this review should be considering?*

Ofcom has clearly considered carefully how a market approach could deliver its objectives as described in its Spectrum Vision. The initiatives of trading, liberalisation and auctions seem well suited to the primary rights holders of spectrum. JFMG believes that further work may be needed in the area of secondary or shared use of spectrum, particularly in regard to item 3 of Ofcom's Spectrum Vision (i.e. *Rights of spectrum users should be clearly defined and users should feel comfortable that they will not be changed without good cause.*)

Much of the spectrum used by programme makers is on a secondary basis under terms agreed with the primary user. Whilst these terms are often explicit (e.g. Use not permitted within 56 km of NGR HU 500 250) there are also implicit terms of the agreement that reflect the overall low density of use often associated with PMSE use.

The low density and temporary nature of PMSE use results in a low level of cumulative interference and also a low probability of interaction with other services. For sharing with some critical applications such as space operations, a low level of cumulative interference is essential. In Annex H, Ofcom discusses the issue of density of deployment in the context of a network of base stations (*H.4 Changes in the number of base stations*). JFMG is not yet clear if Ofcom's outline proposals for specific and restrictive spectrum rights are sufficient to handle this type of sharing arrangement.



*Q2: Do you believe it is useful to publish a compendium of issues? How frequently should it be published? What information should be included?*

JFMG agrees that a compendium of issues is a useful resource.

With the unprecedented flux in spectrum allocations JFMG believes Ofcom should aim to publish an update at least annually.

Harmonisation within CEPT and ITU has in the past proven to be a strong driver for the re-allocation of spectrum. Although JFMG notes that Ofcom is reviewing its position in regard to international harmonisation on spectrum policy and decisions, it would be useful for the document to indicate bands or decisions that UK intends to support (or not support).

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*Q3: Are there any other issues of sufficient significance to merit mention in this document?*

JFMG believes that Ofcom has captured the key issues. Of these, the most significant risk PMSE users face is from Digital TV switchover.

Although JFMG believes that Ofcom is aware of the vital importance of the UHF TV band for PMSE applications, there is no mention of the need to consider the requirements of programme makers after analogue TV switch-off.

All of the 14 TV channels provisionally identified to be 'cleared' for new services are used for wireless audio devices such as microphones and personal monitors. Of these, Ch63 to 68 are particularly heavily used by programme makers and theatres. The future opportunity for continued use of this spectrum for wireless audio depends on the characteristics of the new services deployed.

JFMG is aware that the final shape of the all-digital broadcasting network is subject to the outcome of the Regional Radio Conference, Geneva 2006. But as soon as the international agreement is ratified, JFMG urges Ofcom to consider the impact on PMSE use in both the 'cleared' spectrum and also in the interleaved spectrum retained for the core digital TV network.

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*Q5: Do you agree with Ofcom's intent to maximise the use of trading and liberalisation?*

JFMG believes that, in principle, trading and liberalisation would be of benefit to spectrum users in the PMSE sector. However, the introduction of trading into PMSE needs careful consideration since the current delegated arrangement where JFMG Ltd is responsible for the day-to-day management of PMSE spectrum, is unique.

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*Q10: Do you agree with Ofcom's longer term proposals for market-based spectrum management methods?*

JFMG agrees with Ofcom's approach to the introduction of market-based spectrum management methods such as trading and liberalisation into the PMSE sector.

Regarding auctions, there is anxiety amongst programme makers that (with the exception perhaps of major broadcasters) they may never be able to compete for spectrum with network operators either individually or even collectively. The current arrangements provide a level playing field for access to spectrum for all players and support a vibrant independent production facilities sector. The new market-based methods must not be allowed to starve the independent sector which could become dominated by a few controlling players using spectrum as a lever for contracts.

There are the same concerns about access to spectrum at major events where there is often scarcity of spectrum. With the current arrangements, JFMG is able to strike a successful balance between: (i) the needs of the host broadcaster, (ii) the requirements of other significant players and (iii) essential supporting infrastructure.

JFMG believes that Ofcom intends to undertake an economic study of the PMSE sector with the aim of better understanding these issues. JFMG supports this initiative.

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*Q11: Is the approach set out here, and in Annex H, for developing technology-neutral spectrum usage rights appropriate? Are there alternatives?*

JFMG supports the concept of developing technology-neutral spectrum usage rights but has identified an issue over defining the permitted density of use in some bands e.g. 2025 – 2110 MHz. This is described in our response to Q1 above.

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*Q12: Should Ofcom do more to resolve interference?*

JFMG supports Ofcom's innovative proposal to deploy a dense network of unattended monitoring stations. No timescale for deployment is indicated but as this would potentially be useful in resolving interference problems in the PMSE sector, JFMG would urge Ofcom to roll-out at least a skeleton network covering major conurbations within the next 12 or 18 months.

A wide range of PMSE users have called for greater support from Ofcom in the resolution of interference. This has been a key issue in user-group meetings and identified as the single most important objective in deriving greater value and enhanced service from increased licence fees.



The short-term and itinerant nature of many PMSE activities means that, in general, Ofcom is not currently best positioned to respond to a call-out request for an immediate investigation; particularly as many events occur out of normal office hours. JFMG currently works with Ofcom's enforcement and investigations team to proactively identify potential hot-spots and plan the deployment of resources in advance. Although this proactive approach has been successful for major events or recurring trouble-spots, it needs to be supplemented by the capability to respond to issues as they arise.

Remote access to a local unattended monitoring station could at least confirm whether or not all parties were operating within licensed parameters. Beyond this essential first step, Ofcom would still need to gear-up to be able to follow-up with on-site support (including outside of office hours) within the short time frame of live events.

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*Q16: Do you agree with Ofcom's proposal to continue with division by frequency as the primary method of dividing spectrum?*

JFMG agrees that the primary method for dividing spectrum should be by frequency.

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*Q17: Is Ofcom's approach of not intervening to mandate entitlements in time appropriate?*

To some extent, the concept of cognitive radio as described by Ofcom is already emerging in the technology used for wireless audio devices to aid sharing of spectrum interleaved in the UHF TV bands. Although in the context of Ofcom's consultation document, this type of use is a combination of both entitlement in power and entitlement in time. In this case, the entitlement in power (10 mW radiated power) is significantly greater than for UWB technology and the entitlement in time is for periods of a few hours. This is likely to be a significantly longer dwell time than envisaged for other types of cognitive radio.

The technology that is emerging enables a wireless audio receiver to scan a range of TV channels and identifies which ones are occupied by broadcast signals. On finding a clear TV channel, the associated wireless audio transmitters are allocated frequencies within the clear spectrum from a compatible set that will operate together without mutual interaction. The technology is not foolproof since there is a risk of causing interference to TV reception which results from the equivalent of the "hidden terminal" problem described by Ofcom in section 5.3.2. In this case, the broadcast signal may be sufficiently obscured by local factors at the wireless audio receiver such that it incorrectly concludes that the spectrum is clear for use. The resulting wireless audio transmissions may then be sufficient to cause interference to local reception.



With the higher degree of protection demanded by analogue TV, JFMG believes that broadcasters are unlikely to agree to a relaxation of the current requirements for per-location licensing. However, the greater immunity of digital TV from low power wireless audio devices indicates that there is scope for this methodology to deliver a mechanism for a lighter-touch in the future.

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JFMG Response to SFR Consultation