



JFMG Response to the Review of Spectrum Management 2002 By Professor Martin Cave

JFMG Ltd is an Engineering Consultancy, offering specialist spectrum planning and interference management services. The company was established in March 1997. JFMG currently hold a contract with the Radiocommunications Agency (RA) to manage and license that part of the radio spectrum allocated for use in programme making, entertainment and for special events. JFMG coordinates the use of the radio spectrum to minimise the risk of interference, issues licences and collects licence fees on behalf of the Radiocommunications Agency.

In the UK radio communications sector, the professional use of radio for programme making and entertainment purposes is referred to as Programme Making and Special Events (PMSE). PMSE covers the use of spectrum for:

- Broadcast television studio production
- Broadcast television and radio coverage of news, sport or other public events
- Making advertisements and promotional material
- Production for multi-media and webcasting
- Theatre and touring shows
- Music and other entertainment productions
- Movie film productions
- Conferences, and corporate presentations and events
- Public address systems at events and places of worship

JFMG currently acts as the Spectrum Management Organisation (SMO) for the PMSE sector. JFMG engineers use a flexible tool kit of computer-based engineering software, which is uniquely and specially developed to facilitate their planning of radio spectrum that is used by programme makers. JFMG has the technical expertise and experience to maximise the use of PMSE spectrum.

JFMG recognises that the introduction of spectrum trading may be of benefit in some sectors of radio. JFMG believes that spectrum auctions and trading should be considered as additional tools to complement the existing spectrum management framework, but should be applied selectively to appropriate sectors only. JFMG also encourages the generation of conditions that promote the establishment of more Spectrum Management Organisations (SMOs).

Most of the available PMSE spectrum is managed dynamically by JFMG to meet short-term requirements on a day-by-day and hour-by-hour basis. Requests for longer-term assignments are subject to careful scrutiny to reduce the opportunity for hoarding. Hence, JFMG believes that spectrum trading and auctions would have a limited impact in this sector.

JFMG is pleased to contribute to this consultation and would welcome the opportunity to be involved in the next steps.

Detailed Points:

The following section provides JFMG's comments on the Review's recommendations and comments specific to PMSE.

Para 8.39: JFMG agrees with the report in its comments that the demand for spectrum from the PMSE sector is growing rapidly. This is consistent with the conclusions drawn in a study carried out for the Radiocommunications Agency in 1997 by The Smith Group and JFMG, entitled '*The demand for programme making and special events spectrum*' (1999). The study predicts an increase in peak demand for spectrum for all PMSE customer-segments. Similar results are presented in the recently published ECC Report 002, entitled 'SAP/SAB (Incl. ENG/OB) Spectrum use and future requirements' which predicts a similar growth in demand for equivalent PMSE spectrum throughout Europe.

Para 8.40: Virtually all (not 'many' as stated in the review) of the frequencies currently allocated for PMSE are shared with other users. In general, JFMG's frequency bands have to cater for a variety of different equipment requirements and applications. For example, in a single UHF band, the bandwidth of assignments may vary from 12.5 kHz up to 200 kHz, and the transmitter power may vary from 10mW to 25W. Also, individual channels may be used for a number of geographically spaced wide area assignments. Allocations are restricted according to geography or by power, in order to protect PMSE users and non-PMSE users from interference. This is a determining factor why there is limited tradable or auctionable spectrum within the current PMSE band.

Para 8.41: 'JFMG Ltd' has replaced 'The Joint Frequency Management Group' for management of PMSE spectrum. JFMG has provided a successful spectrum management and licensing service for PMSE under its contract with the Radiocommunications Agency since 1997. It has recently been awarded a new 3-year contract, which runs from April 2002.

Para 8.42: JFMG does encourage the use of more spectrum efficient equipment within the PMSE sector and has been active in its involvement with the RA in the establishment of a pricing structure that encourages greater spectrum efficiency.

JFMG currently does not have the authority to issue licences for frequencies from within the PMSE spectrum to any non-PMSE users and supports the Review's suggestion that this limitation should be removed as soon as possible. As suggested in the Review, this may enable more spectrum efficient management of major and minor events.

At present, the organiser of a concert or a sporting event must go to two different agencies to satisfy the overall requirement for spectrum, and often does not understand this apparently arbitrary division of responsibility. Also at present, there is no routine co-ordination between the PMSE and PMR frequencies assigned for an event. At a few major events, JFMG is able to work closely with the RA to avoid interference from frequency conflicts; but at the many minor events throughout the year neither organisation is aware of the other's assignments.

JFMG has efficiently managed the PMSE use at major events. These include the Millennium events in London at the end of 1999, the funeral of Diana, the Princess of Wales, and a number of major sporting events such as the British F1 Motor Racing Grand Prix at Silverstone and the Open Championship (golf).

JFMG believe that licensees would greatly welcome the change to a single point of contact, a single payment for a single licence, and the ability to obtain managed frequencies for all purposes at short notice when required. We also believe that there is a potential for considerable efficiency in spectrum utilisation from such a unified service. However, in order for a single Spectrum Manager to provide the spectrum planning and management of all radio use at a concert or event, it is essential that spectrum in addition to current PMSE bands is made available to the spectrum manager to administer this service.

Para 8.43 JFMG agree with the Review's suggestion that JFMG should be able to provide spectrum for private mobile radio use on the same terms as it does for PMSE users. JFMG also support the suggestion that when spectrum trading is introduced, other holders of spectrum should be able to offer their spectrum to PMSE users, as certain types of PMSE equipment are able to operate on alternative frequencies.

Although JFMG supports the theory of Opportunity Cost, it believes that the concept requires further clarification.

- For many of the specialised services within PMSE, there is no viable alternative technology for these users, and therefore it is impossible to calculate the opportunity cost of their spectrum.
- Also, since so much of the PMSE spectrum is restricted or shared it is difficult for alternative uses of this spectrum to be derived, and once again makes the calculation of the opportunity cost of the PMSE spectrum complex.

JFMG would welcome the opportunity to discuss the opportunity cost of the PMSE spectrum in more detail with the Review Team.

Para 8.44: PMSE spectrum available for auction is limited since frequencies used within PMSE are shared with other users. Spectrum trading in the band is also restricted, and if trading should occur it would require a Spectrum Management Organisation to carry out careful coordination of spectrum use within the band to minimise the potential for interference (a function that JFMG currently carries out).

The PMSE spectrum-use can be sub-divided into two groups:

- Short-term use
- Medium to long-term use

Perhaps just 5% of the total assignments issued by JFMG apply to the exclusive use of a frequency throughout a geographical area. These valuable assignments would be suitable for trading although only on the basis that the use remains unchanged since careful co-ordination is required to reduce the risk of interference.

Up to 20% of the frequency assignments issued by JFMG are for medium to long term use and range in duration from 30 days to one year. Most of these medium to long term assignments will have been co-ordinated for use only at a particular location such as a theatre or studio. Since they could not be transferred to a new location without further co-ordination, it is not anticipated that there will be much interest in trading these assignments.

Up to 80% of the frequency assignments issued by JFMG are to meet the short-term requirements of programme makers at temporary locations. The typical duration of these temporary assignments is less than 48 hours and many are for 8 hours or less. The opportunities for trading these assignments are limited and would not generally

be practicable. For example, late editorial changes in programme schedules may occasionally mean that assignments are not required at a particular venue. Whilst in theory the unwanted assignments could then be available to trade, in practice they would rarely be of any value to another user. Also, some types of short-term assignment, known as Request Channels, qualify for cancellation and re-issue at another location for no additional charge. It is unlikely that there would be any advantage in trading these Request Channels.

Hence, short-term use is characterised by the intense use of a wide range of spectrum at a location. JFMG feel that currently, this spectrum is being efficiently traded, where JFMG acts as the Spectrum Management Organisation and coordinates all uses of PMSE spectrum at one location. A recent example of where JFMG was able to maximise the use of spectrum for a short-term event was for the funeral of Her Majesty Queen Elizabeth The Queen Mother. For short-term use of PMSE spectrum, JFMG agree with the Review's suggestion that it may not necessarily be possible to have more than one Spectrum Management Organisation (SMO) to manage this spectrum.

Long-term use is characterised by the use of spectrum over a duration that typically ranges from 30 days to one year. It is this use of spectrum that has potential for auction or trading. It is also possible that these spectrum users that may benefit from leasing or purchase of spectrum outside PMSE, and may therefore seek to obtain spectrum from alternative Spectrum Management Organisations or Band Managers.

In summary, JFMG believe that in order to maintain the efficient short-term use of PMSE spectrum, one Spectrum Management Organisation (SMO) should manage this spectrum. JFMG believe that the current spectrum management system already maximises the efficient use of this spectrum.

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