

# Response to Ofcom consultation: Consultation and information on technical licence conditions for 800MHz and 2-6GHz spectrum and related matters

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## 1. Company Profile

JFMG Ltd is the dedicated band manager for programme-making, entertainment, special events and related activities. It is a privately owned company created specifically to ensure continued and equitable spectrum access to all areas of the programme-making industry.

JFMG successfully coordinates the use of spectrum, issues licences and collects licence fees on behalf of Ofcom, and have done so since 1997, recently securing a further five year contract. The spectrum we manage ranges from 47MHz to 48GHz and requires expert knowledge of the bands, their uses and restrictions. This includes the spectrum within Ofcom's Digital Dividend Review and the interleaved spectrum.

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 such as the Papal Visit and recent Royal Wedding
- Theatre and touring shows (e.g. Doctor Dolittle, Cirque du Soleil)
- Music and other entertainment productions (e.g. Glastonbury, T in the Park)
- Motor sport communications and remote monitoring (e.g. F1GP, Moto GP)
- Conferences, and corporate presentations and events
- Movie film productions

JFMG Ltd facilitates the successful running of these events, provides on-site consultancy services and is committed to leading the industry through the transitional period ahead.

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## 2. Background

The imminent award of the 800MHz and 2-6GHz spectrum bands, and their loss to programme makers, has been known for some time and the PMSE industry has been preparing as best it can. Key to a successful programme making industry going forward is continued access to sufficient suitable spectrum. After 2012, without access to these two bands, it will become more challenging to meet the spectrum demands of some routine events, particularly for wireless cameras. As a result it is particularly important that the remaining PMSE spectrum, immediately adjacent to the award bands, continues to be fully available.

### 800MHz

Below 790MHz, adjacent to the 800MHz band, wireless microphones and monitors will continue to be the dominant application for PMSE. With the reduction in available spectrum post DSO, sharing with the remaining DTT services, existing and future greater demands will have to be more carefully

accommodated. The proposals in this consultation for base station out-of-block EIRP limits in the range 470-790MHz are specified in an 8MHz measurement bandwidth, appropriate for DTT protection, but not necessarily for more narrowband FM applications used by PMSE. Ofcom are undertaking further work to determine specific additional technical restrictions for new services in the 800MHz band to co-exist with adjacent DTT below 790MHz, but PMSE assignments will also continue to occupy spectrum below 790MHz and need similar consideration. Ofcom studies should also therefore consider further the impact of the proposed out-of-block EIRP limits of new services on PMSE in the range 470-790MHz.

The range 863-865MHz is used by a significant community for wireless microphones and monitors, with the supporting Aegis study estimating figures of over 138 000 pieces of equipment. Whilst not strictly PMSE spectrum, there is use of it made by the PMSE community and the distinction between unprotected Short Range Device (SRD) spectrum and co-ordinated PMSE spectrum is not always appreciated by the user. With the move to clear Ch69 of PMSE, not every user is choosing to migrate to Ch38. Instead, where existing equipment permits, 863-865MHz is a viable alternative. The analysis carried out on the impact of new services in the 800MHz band on SRDs, specifically wireless microphones in the range 863-865MHz, assumed equipment with integral antennas at 1.5m agl. This will not always be the case for equipment originally operating in Ch69 and receive antennas may instead be elevated, possibly with active gain. For integral antennas at 1.5m agl protection distances approaching 50m were calculated for wanted signals well in excess of the receiver sensitivity. The protection distances for more elaborate receive installations are therefore likely to be significantly higher. Given the significant quantity of equipment in use it would be prudent to further assess the impact of new services in the 800MHz band on wireless microphones in the range 863-865MHz, particularly for elevated receive antennas with gain.

No reference is made to potential use of the duplex gap, 821-832MHz, which is designated 'not available' to new services in the harmonised plan for the 800MHz band. In the Ofcom consultation 'Digital Dividend: clearing the 800MHz band' (02/02/09) PMSE use of this band was proposed for wireless microphones and monitors, giving access to valuable UK wide spectrum.

## 2.6GHz

Range (MHz)	2011	Post 2012
2010-2110	10	10
2200-2300	10	10
2390-2400	1	1
2485-2495	1	1
2500-2690	19	0
<b>Total</b>	<b>41</b>	<b>22</b>

Table 1: Comparison of the quantity of 10MHz Wireless Camera channels below 3GHz, now and post 2012, following the 2.6GHz award

Over the past year there have been approximately 1270 individual uses of the band 2500-2690MHz for wireless cameras. This demonstrates a significant reliance on spectrum in addition to the other favoured wireless camera bands below 3GHz. With this level of demand going forward and a significant quantity of legacy equipment not capable of operating below 2300MHz the channels centred on 2490MHz and 2395MHz will attract even greater demand in future. The PMSE industry

has already proactively responded to minimize the interaction with new services above 2500MHz by adopting 2490MHz instead of the former 2495MHz channel, accepting the greater potential for interference from lower adjacent ISM services. The special arrangements secured for the Olympics may facilitate exceptional access to the same additional spectrum post 2012, but it can clearly be seen that the loss of the range 2500-2690MHz to the PMSE industry could cause significant problems meeting the demands for coverage of major events. The importance of the single wireless camera channel centered on 2490MHz will increase for a proportion of PMSE licensees for whom there is no other suitable spectrum for their equipment, except perhaps the channel centered on 2395MHz. Work has been carried out in the past on compatibility between new services above 2500MHz and wireless camera use immediately below but now that more is known about the technical characteristics of the potential new services further compatibility studies would be appropriate. JFMG could contribute to this work.

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### 3. Consultation questions

Question 1: Do you have any comment on the proposal to apply the limits defined in Case A of Commission Decision 2010/267/EU for out-of-block emissions from base stations into all frequencies in the range 470 to 790 MHz, as set out in Table 4.4?

It is stated that additional technical restrictions may be needed for achieving the co-existence of new services in the 800MHz band with adjacent DTT use. PMSE use of the ranges 470-550MHz and 606-790MHz will also need to co-exist with new services in the 800MHz band and further technical analysis will therefore be required. The out-of-block limits are specified for protection of DTT reception, which in the UK occupies a full 8MHz bandwidth. Whilst the limits appear reasonable for the protection of DTT a further limit should also be applied to protect PMSE services, which typically occupy 200kHz channels. JFMG could be happy to contribute to additional work to ensure that out-of-band limits from new services do not have a detrimental impact on spectrum availability for programme making.

Question 2: Do you have any comment on the proposal to set an in-block emission limit of 61dBm/ (5 MHz) for base stations in the 800 MHz band?

Again as Ofcom will be further considering whether additional technical restrictions will be required for the co-existence of new services in the 800MHz band with DTT services, the impact on PMSE services also needs to be taken into account. JFMG could contribute to this work to ensure that the in-block emission limit does not have a detrimental impact on spectrum availability for programme making.

#### Technical licence conditions for the 2.6 GHz band

Question 3: Do you agree with the proposed conditions on antenna placement that would permit the use of the alternative block-edge mask for restricted unpaired blocks? If not, please explain your reasoning and your alternative proposals, bearing in mind the need to remain consistent with the framework provided in Commission Decision 2008/477/EC.

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

Question 4: Meeting the conditions on the use of the alternative block edge mask for restricted TDD blocks would require certain licensees to share information about the locations of their base stations. Do you agree with this proposed approach?

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

#### Low-power shared access in paired 2.6 GHz spectrum

Question 5: We welcome comments on stakeholders' preference for the dedicated or hybrid options for low-power shared access as discussed above.

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

Question 6: We welcome comments on the appropriate frequency placement for low-power spectrum blocks.

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

Question 7: Do you agree with our proposed technical licence conditions for low-power access?

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

Question 8: We welcome comments from stakeholders on the additional restrictions and technical measures we have outlined for the management of interference under the hybrid approach, and the technical licence conditions that would be necessary to implement them.

JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

Question 9: Do you agree that a Code of Practice on Engineering Coordination, as outlined, is the appropriate approach to manage the coexistence between low-power licensees?  
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JFMG have no view on these issues pending the outcome of work on further technical restrictions for the co-existence of PMSE in adjacent spectrum.

#### Terminal stations

Question 10: Do you agree that we should proceed with the approach that terminal stations complying with the relevant technical parameters be exempted from the requirement for individual licensing?

Provided terminal stations comply with suitable technical parameters that do not impact spectrum availability in adjacent bands for PMSE use JFMG have no objection to exempting them from the requirement for individual licensing.