The future use of the 169MHz Ex-ERMES Band

This document sets out Ofcom's decision on the usage of the band 169.6125 to 169.8125MHz

Statement

Publication date: 25 March 2008

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Section 1

Executive summary

1.1 In our consultation published on the 10th October 2007 we set out proposals to allow the temporary use of PMR (Private Mobile Radio) and PMSE (Programme Making & Special Events) services in the ex-ERMES high power band 169.6125 to 169.8125 MHz as permitted in the EC Decision 2005/928/EC. We received five responses to the consultation, each of which broadly supported Ofcom's proposal to permit PMR and PMSE in the band on a temporary basis. We have therefore decided to allow access to the ex-ERMES band for both PMR and PMSE systems on a secondary basis for periods of up to a maximum of six months.

1.2 EC Decision 2005/928/EC does not permit us to offer this spectrum to the market on a more technology neutral basis. We will continue to monitor whether there is any interest in using this band for the primary uses of asset tracking and paging. We may use this data to support any future proposal to amend EC Decision 2005/928/EC.

Section 2

Introduction

2.1 EC Decision 2005/928/EC divides the ex-ERMES band into low and high power parts. The low power part of the band was addressed in a previous Ofcom consultation in July 2006 entitled, "Wireless Telegraphy Licence Exemption", which set out our proposals for licence exemption of the low power applications detailed in Decision 2005/928/EC. The low power statement can be found at[1]:
http://www.ofcom.org.uk/consult/condocs/wtle
This statement presents our decision to allow PMR//PMSE systems to operate in the high power section of the ex-ERMES band 169.6125 to 169.8125 MHz on a secondary basis. The primary use for this band as stated in EC Decision 2005/928/EC is for high power Paging and Asset tracking services. We are therefore mandated to keep access open to primary users if they request this at some time in the future. If the EC Decision 2005/928/EC comes up for revision Ofcom can use recorded licence data which goes back to 1999 on the usage within the band to make recommendations to change the use so the band can be assigned on a technology neutral basis.

2.2 Ofcom had already consulted informally with the national Paging and Asset tracking network operators and asked them if they had any plans to migrate into the ex-ERMES band. They stated clearly that they had no plans to migrate into the 169 MHz band. The networks that they operate in other bands are mature and it would be a very costly exercise to migrate into this or any other band. A similar set of circumstances apply in other European countries where asset tracking services are operating.

2.3 On the 10th October 2007 Ofcom therefore published a consultation document on its intended use of the ex-ERMES high power band proposing to allow PMR/PMSE users to apply for licences up to a maximum period of six months to operate their systems in the ex-ERMES band

2.4 We received five responses to our consultation and all were broadly in agreement to allow PMR/PMSE systems in the 169 MHz band.

Structure of this document

2.5 The structure of this document is as follows:

- Section 3 describes the background to developments in the ex-ERMES band;
- Section 4 considers responses to the consultation in detail and sets out our decision in light of these responses;
- Section 5 explains how we will implement our decision and allow for short-term PMR and PMSE licensing.

[1] http://www.ofcom.org.uk/consult/condocs/wtle

Section 3

Background

3.1 In 1990, spectrum within the 169.4 to 169.8 MHz band was designated within the Community, through a European Directive 90/544/EEC, for the introduction of the "pan-European land-based public radio paging service" known as "ERMES".

3.2 By 1999, it became apparent that the ERMES frequency band was not being used for ERMES in most CEPT countries. This was confirmed by an independent study ordered by the Commission which concluded that ERMES was not gaining wide operator acceptance and that the vision of ERMES as a pan-European paging system was not going to be realised.

3.3 On the 7 July 2003 the Commission mandated CEPT to identify a list of alternative applications for the use of the 169.4 to 169.8 MHz band, particularly those not related to traditional electronic communications as the spectrum was not being utilised efficiently, and to collect information on the current and future possible applications for the band. CEPT was asked to evaluate compatibility between the various applications and the possibility of using alternative radio spectrum bands in line with the principles of the Framework Directive.

3.4 CEPT later confirmed through the collective information and research that, despite the adoption of Directive 90/544/EEC, the use of the band for ERMES had remained very limited, as the expected increased demand for radio messaging and paging had been overtaken by newer technologies such as short messaging systems (SMS) over GSM.

3.5 CEPT decided that the spectrum band 169.4 to 169.8 MHz for ERMES should be modified in the Community in order to ensure more efficient use of the band, while preserving its harmonised structure.

3.6 As mandated, CEPT produced a new frequency plan and channel arrangement for six types of preferred applications to share the radio spectrum band divided between a low power part 169.400 to 169.600 MHz and a high power part 169.6125 to 169.8125 MHz. The CEPT report identified two preferred applications for the high powered part

- high power transmitters for Tracing and Asset tracking systems;
- New paging systems, or paging systems relocating from other channels in the radio spectrum band.

It also made provision for the temporary uses such as PMR to assist in the coverage of special events for a period of a few days up to a few months.

3.7 The Commission reflected CEPT's recommendations for the future use of the high power part in a Decision -"Commission Decision 2005/928/EC of 20 December 2005 on the harmonisation of the169.6125-169.8125 MHz frequency band in the Community" which can be found at[2]: http://eurlex.europa.eu/LexUriServ/site/en/oi/2005/I 344/I 34420051227en00470051.pdf

[2] http://eurlex.europa.eu/LexUriServ/site/en/oi/2005/I 344/I 34420051227en00470051.pdf

3.8 This Decision, which repealed the 1990 Directive on ERMES, now requires the high powered part of the band to be made available for preferred applications of Tracing, Asset Tracking and Paging. It also allows for alternative use providing that this does not constrain the harmonised implementation of the preferred applications.

3.9 The decision slightly extends the band plan from 169.4 MHz to 169.8 MHz (in the 1990 ERMES Decision) to 169.4 to 169.8125MHz in order to align it with the CEPT channel plan which applies to this frequency range.

3.10 Our consultation addressed implementing the Decision but also recognises the lack of interest for the primary use within the UK. We want to make this spectrum accessible for other uses but we still have an obligation to observe the EC Decision. Demand for short term access to spectrum for PMSE/PMR services is an ideal use for this spectrum and our Decision formalises the approach we will take.

Section 4

Assessment of the responses

4.1 There were five responses to this consultation. All five respondents were broadly in agreement with the Ofcom proposal. Two respondents requested that their submissions should remain confidential. The other three were the BBC, JFMG Ltd and BECTU, and these are produced below:

BBC

4.2 "The BBC welcomes the opportunity to respond to this consultation on the future use of the 169 MHz ex-ERMES band.

BBC is reviewing possibilities to enable our continued use of radio links providing programme quality (or near programme quality) audio links to and from radio cars operated by Local and Regional radio. This facility has to date been provided in 211/213 MHz in VHF Band III and in the UHF band (UHF 1 and 2) around 446 MHz. Band III spectrum is becoming subject to increased restrictions-of-use to enable DAB expansion and in certain areas of the UK, 446 MHz is becoming unusable due to increased interference. Initially 169 MHz appears to be an attractive candidate to complement these existing allocations.

However, in the Ofcom proposal for 169 MHz, PMSE shares the available 200 kHz of bandwidth with PMR, an arrangement which in the past has caused compatibility issues with our use of VHF spectrum. Additionally, the secondary nature of the access and the resulting lack of certainty of tenure is not conducive to development of equipment in this band.

Nevertheless, Ofcom already notes the use this band, on an ad-hoc basis, for large sporting events and for allocations to visiting broadcasters. The BBC would argue that any proposal which may preclude such use in the future would lead to further congestion of other bands during these events.

In order to maximise the use for PMSE in this band, the BBC suggests that Ofcom make four adjacent 25 kHz channels exclusively available to PMSE. To allow flexible use of this spectrum, it should be allocated to broadcasters and programme makers through the JFMG's offices and, in order to encourage the use of more efficient digital systems, it should be offered on a technology neutral basis. Provision of information (by Ofcom) on the geographical deployment of PMR in adjacent channels in this band would also be an invaluable tool to assist the spectrum managers of the JFMG".

JFMG

4.3 "The current temporary PMSE assignments in the ex-ERMES band are for short range communications to handheld mobiles. There are limited alternative options in VHF spectrum and JFMG would hope that following the consultation compatible temporary assignments can continue be made in this band. The propagation characteristics, radiated power limits and bandwidth of the ex-ERMES band however also make it particularly attractive to other PMSE applications, for which spectrum is similarly scarce.

One specific application is point-to-point audio links as typically used for news reporting from vehicles to receivers on fixed infrastructure. Valuable wideband audio link channels are being lost in Band III for new DAB services and as yet no alternative suitable spectrum has been identified. Alternative options in the frequency range 450-470MHz are limited due to existing assignments and Band I is also being explored as a potential solution. New equipment employing robust digital modulation techniques is currently being developed for wideband audio links.

Making the ex-ERMES band available to PMSE and wideband audio links in particular would be very timely and of great benefit to Programme Makers despite the proposed maximum licence period of six months. Greater security of tenure would make the band more attractive to Programme Makers, particularly those looking to invest in receiver infrastructure.

Access to the band, managed by JFMG, would be a very valuable addition to PMSE."

BECTU

4.4 "The Broadcasting, Entertainment, Cinematograph, and Theatre Union represents 27,000 workers across the audiovisual and entertainment industry, including many who are employed or engaged in work that falls within the PMSE sector.

In responding to the Ofcom consultation on possible allocation of a 200 kHz section of spectrum to the PMSE sector we welcome the regulator's continuing efforts to address the problems of operators who depend on personal wireless devices to carry out their jobs effectively.

The union is aware of three possible uses of this bandwidth, some of which would be of interest to the PMSE sector: radio microphones and in-ear monitoring; simplex or duplex talkback from production staff to operators at events; and high-quality long-distance audio transmission of programme content, particularly in the radio industry.

In the case of radio mics and IEDs, the spectrum concerned is of questionable benefit. Equipment for use in the VHF part of the spectrum is increasingly rare, and practitioners say that these wavelengths are notorious for interference problems, based on previous experience before UHF equipment was introduced.

Another impediment to use of 169MHz is the fact that the 200 kHz slot subject to consultation could accommodate only one full-bandwidth analogue radio mic, or possibly two bandwidth-limited devices, and as a consequence would probably be utilised only as a last resort. In most situations where just one or two microphones are needed, the existing arrangements at the top end of the UHF band are adequate, and 169MHz would most likely be pressed into use where dozens, or hundreds, of devices are being used in close proximity.

Access to 169MHz for radio mic users neither solves, nor seriously ameliorates, the problems that our members face if Ofcom presses on with that part of the Digital Dividend Review that will deny them easy access to UHF frequencies to accommodate personal wireless devices.

Sports organisers, and very occasionally broadcasters, do make use of 169MHz to operate either continuous talkback to staff and technicians, or PMR-style simplex walkie-talkies to coordinate activities at events. The consultation paper correctly

notes that the Wimbledon Tennis Championship and British Grand Prix are examples of such usage. We can see no reason to cease use of 169MHz for these purposes.

Broadcasters are experiencing a gradual withdrawal of available spectrum for their purposes as Ofcom continues with various reviews covered by separate consultations. In this context we are aware that radio broadcasters would welcome access to 169MHz, particularly for mobile news vehicles which relay interviews, often live on air, from locations outside their studios using standard analogue RF modulation.

Because of the distances often encountered between mobile units and receiving points, this application would be relatively high-power, and has the shortcoming that only one full-bandwidth audio circuit could be accommodated in the 200KHz slot under discussion.

Nevertheless, we would support the broadcasting community in any bid to achieve access to this slot, even on a sporadic or geographically-limited basis, to take account of special event use of the frequency from time to time.

In summary, we do not see great benefit from use of 169MHz for radio microphones, but believe that existing operators should continue to have access. We predict that radio broadcasters would make regular use of the frequency, subject to the needs of special events, and the existence of suitable equipment (possibly re-engineered current kit).

Offering this spectrum to the PMSE sector would be welcome, but does not solve the anticipated problems for operators of personal wireless devices which are posed by the DDR."

Our Decision

4.5 The EC Decision requires Ofcom to make this band available for asset tracking and paging systems. The frequencies available to such applicants are set out in Annex 3. However, to date there has been no interest shown in using this band for these applications. Ofcom recognises the importance of the PMSE sector contribution to the broadcast industry in the making of programmes and the importance of the logistical support that PMR offers in the smooth running of major festivals and sporting events etc. We consider that access to the 169 MHz ex-ERMES band can make a useful contribution in providing spectrum for both PMSE and PMR users. Hence we have decided to make this band available to PMSE and PMR users on a temporary basis for periods of up to 6 months. This decision will formalise that current ad-hoc arrangements under which Ofcom has been making the spectrum available for short term use since 1999. We have interpreted the Decision as allowing secondary use for up to 6 months and this complies with 'temporary use' as stated in the Decision. Granting longer term licences would imply rights to continued access to the band, whereas the Decision places priority on the primary applications.

4.6 The responses expressed some concern about not having security of tenure of this spectrum on a primary basis with the result that it will not encourage investment in new technology. To overcome this concern would need a change in primary use and this could only be achieved by a revision of EC Decision 2005/928/EC. Ofcom will, as stated in para 1.8 of our consultation document, support any future requests for the

Decision to be amended to allow permanent use in this band on a more technology neutral basis.

4.7 As requested by respondents we will, when possible, allow adjacent channels to be joined together to gain wider bandwidths, such as for high quality radio microphones. This can be achieved if the spectrum is available to assign in the required operational area. Experience has shown that the demand for this spectrum is high, especially for major events.

4.8 Applications by PMSE users of the spectrum need to be made via JFMG Ltd. However, Ofcom will need to continue administering access for PMSE systems in this band for the foreseeable future because;

- It requires Ofcom assignment tools to co-ordinate with other users;
- We are making assignments for PMR as well as PMSE and so new PMSE assignments will need to take account of existing PMR assignments as well as existing PMSE assignments;
- We need to be able to make assignments for primary applications if any are received, and so need to retain management of this spectrum.

Section 5

Implementation and licensing

5.1 The new licensing arrangements will have the effect of formalising the current, ad-hoc process for secondary users in this band. The process for licensing PMR systems in the ex-ERMES band will be the same as the procedure for licensing in any of the other PMR bands that we currently administer. However, the maximum licence period for business radio licences in the ex-ERMES band will be six months. There will be no renewal process for temporary licenses issued in this band. If there is a requirement for continued use beyond the original licence period a new application will have to be submitted.

5.2 Licences will be issued on a first come first served basis and applicants should apply on application form OFW21 which can be downloaded from the Ofcom website[3]: http://www.ofcom.org.uk/radiocomms/ifi/licensing/classes/business_radio/applications/af/OfW21.pdf

5.3 The fee per month for the required bandwidth is one twelfth of the annual licence fee, subject to a minimum licence fee for a business radio licence of £20. The fee will be dependent on the type of licence applied for. Licence fee details can be obtained from the Fees Order at[4]: http://www.opsi.gov.uk/si/si2005/20051378.htm

5.4 The type of PMR systems that will be most suitable for this type of licence are those for short term uses such as exhibitions, sporting and other major events etc. It can also be used for other onsite and wide area PMR uses but licences will not be issued for periods exceeding six months. It is envisaged that the constraints which apply to this spectrum make it unsuitable for permanent systems which involve large infrastructure investment.

5.5 The process for licensing PMSE systems will be to apply to the JFMG who will ask Ofcom to assign a suitable channel. Their relevant application forms can be downloaded from the JFMG website at[5]: http://www.jfmg.co.uk//pages/apply/equiptype.htm

The JFMG, after consultation with Ofcom, will be able to advise the applicant as to whether the 169 MHz frequency band can be made available for their PMSE use.

5.6 These new arrangements come into place with immediate effect. Applications for assignments for both PMR and PMSE systems will be handled on a first come first served basis. The licence will become tradable, following variation to a technically assigned licence, under our Business Radio reforms; this change is expected early in 2009. See[6]: http://www.ofcom.org.uk/consult/condocs/brtrading/statement/

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3 http://www.ofcom.org.uk/radiocomms/ifi/licensing/classes/business_radio/applications/af/OfW21.pdf

4 http://www.opsi.gov.uk/si/si2005/20051378.htm

5 http://www.jfmg.co.uk//pages/apply/equiptype.htm

6 http://www.ofcom.org.uk/consult/condocs/brtrading/statement/

Annex 1

List of respondents

BBC

The British Broadcasting Corporation, which is usually known as the BBC, is a large broadcasting corporation in the UK.

JFMG

JFMG (Joint Frequency Management Group) Ltd is the dedicated band manager for Program-Making, Entertainment, Special Events and related activities.

JFMG co-ordinates the use of spectrum and issue licences to program makers for applications including wireless microphones, wireless cameras, program links and communications.

BECTU

BECTU (Broadcasting Entertainment Cinematograph and Theatre Union) is the independent union for those working in broadcasting, film, theatre, entertainment, leisure, interactive media and allied areas.

Two respondents asked to remain anonymous.

Annex 2

Impact assessment

Introduction

A2.1 Impact assessments (IAs) provide a valuable method of assessing different options for regulation and illustrating why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in section 7 of the Communications Act 2003, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities.

Ofcom's legal obligations

A2.2 Ofcom is legally obliged to comply with the EC Decision 2005/928/EC and failure to do so will breach its statutory obligations. As a result, Ofcom has consulted industry on measures to allocate the high power section of the ex-ERMES band. Given the apparent low interest in the use of the spectrum for Paging and Asset tracking. Ofcom's proposes to make the band available for temporary uses as set out in the EC Decision. We also propose to allocate this spectrum on a first come first served basis for PMR and PMSE use. The decision to reallocate the ex-ERMES band and repeal Directive 90/544/ECC is binding on Member States and so the UK has no flexibility over adopting the new Decision 2005/928/EC. There is currently one legacy user in the band in the UK and the Decision 2005/928/EC makes provision for such users as already discussed in Section 3.3 of our Consultation. Document.

The citizen and/or consumer interest

A2.3 The implementation of this decision will have an indirect impact on citizens and/or consumers, as the making of programmes and the efficient running of large public attended venues will be in the interest of citizens and consumers. It will allow a scarce resource to be better managed and utilised and this utilisation will bring in spectrum efficiency benefits. This band is one of the most popular bands for PMR and PMSE assignments. The Decision 2005/928/EC allows for temporary PMR and PMSE systems where the spectrum is not required by designated primary users.

Ofcom's policy objective

A2.4 The objective is to release the High Power section of the ERMES Band into the market. The 169 MHz spectrum is in a band that has a high demand placed upon it especially in major conurbations. The UK Paging and Asset Tracking industries have so far shown no interest in moving into this Pan-European aligned Band. Ofcom has therefore decided that in order to fully optimise the utilisation of this band it should be used for temporary PMR and PMSE systems in line with Decision 2005/928/EC. Such systems will be assigned in the band on the basis that if a primary user requires access to the spectrum, the secondary user will have to relinquish their assignment.

A2.5 This statement addresses the use of PMR and PMSE systems on a temporary basis in the high powered ex-ERMES band for periods up to six months. If a primary user applies to Ofcom for access to a channel in the band the secondary user may have to relinquish their assignment. This will only be necessary if there is

insufficient spectrum left to satisfy both systems. In the event that the secondary user is required to vacate the spectrum, then Ofcom will consider paying for the system to be retuned to an alternative assignment in another band subject to availability of spectrum in the alternative band.

A2.6 The procedures to implement this policy are already in place and will be administered on a first come first served basis.

Annex 3

CEPT Channel Plan High Power applications

A3.1 The CEPT channel plan has been agreed as the channel plan to be used when assigning primary systems in the 169 MHz band. Our consultation only addressed the high power section of the band, and the systems permitted as per the EC Decision.

A3.2 Tracking and Tracing systems are permitted on a primary basis and are allocated four 25 kHz channels which are 9, 13, 14 and 16 in Table 1 below. These allocations were made to provide access for tracking and tracing vehicles and goods on a pan-European basis.

A3.3 Paging Systems are permitted as a primary service within this band and are allocated four 25 kHz channels which are 10, 11, 12 and 15. However, channel number 15 in Table 1 was already assigned on a national basis within the UK as permitted in Article 3 para 6 of EC Decision 2005/928/EC and is not currently available for new Paging systems. The three remaining 25 kHz channels 10, 11, and 12 are available to be used for paging on a pan-European basis.

A3.4 The following illustrates the Channel Plan in the high power part of the ex-ERMES band:

Table 1: Channelling arrangement for the 169.6125 – 169.8125 MHz band

12.5kHz bandwidth		25kHz bandwidth	
Channel number	Centre Frequency	Channel number	Centre Frequency
12.5kHz Guard Band			
9a	169.618750	9	169.62500
9b	169.631250		
10a	169.643750	10	169.6500
10b	169.656250		
11a	169.668750	11	169.67500
11b	169.681250		
12a	169.693750	12	169.70000
12b	169.706250		
13a	169.718750	13	169.72500
13b	169.731250		
14a	169.743750	14	169.75000
14b	169.756250		
15a	169.768750	15	169.77500
15b	169.781250		
16a	169.793750	16	169.80000
16b	169.806250		