
Spectrum for audio PMSE

Use of the 694 to 703 MHz band

Statement:

Publication Date: 24 November 2017

About this document

This statement sets out our decision to allow Programme Making and Special Events (PMSE) users to continue to access the 700 MHz guard band (694 to 703 MHz) beyond 1 May 2020.

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1. Executive Summary

- 1.1 In November 2014, we published our statement ('the 2014 Statement') setting out our decision to make valuable spectrum between 694 and 790 MHz (the '700 MHz band') available for use for mobile data services.¹ This is a key part of our broader strategy for ensuring that sufficient spectrum is available to meet projected increases in demand for mobile data. To enable this, it is necessary to clear Digital Terrestrial Television (DTT) and Programme Making and Special Events (PMSE) services from the band. We refer to our work on this as the '700 MHz clearance programme'.
- 1.2 In October 2016, we published a statement ('the 2016 statement')² setting out our decision on key aspects of the 700 MHz clearance programme, including our aim to accelerate the release of the 700 MHz band to Q2 2020. In the 2016 statement we gave notice to PMSE users that from 1 May 2020 they will no longer have access to the 700 MHz band to deliver their services. We subsequently published a progress update on the 700 MHz clearance programme in October 2017 which confirmed that the programme is on track to meet our target date for completion of 700 MHz clearance in Q2 2020.³
- 1.3 On 20 April 2017, we published a consultation detailing our proposal to allow audio PMSE to have continued access to the 694 to 703 MHz band ('the consultation').⁴ This spectrum, also referred to as 'the guard band', is required to protect DTT reception below 694 MHz from interference from mobile data services transmitting above 703 MHz.
- 1.4 This statement sets out stakeholders' responses to the consultation and our consideration of those responses. Having carefully considered the responses, we have decided to allow audio PMSE services, namely those using wireless microphones, in-ear monitor systems or audio links, to continue to access the guard band beyond 1 May 2020 as proposed. Access will be granted on a coordinated basis in line with our current approach to the 470 to 694 MHz band.
- 1.5 This decision takes into account the options for use of the guard band set out in the European Commission Implementing Decision 2016/687 ('the RSC Decision').⁵ That EC

¹ See Ofcom's 2014 Statement 'Decision to make the 700 MHz band available for mobile data' https://www.ofcom.org.uk/_data/assets/pdf_file/0024/46923/700-mhz-statement.pdf

² See Ofcom's 2016 Statement 'Maximising the benefits of 700 MHz clearance' https://www.ofcom.org.uk/_data/assets/pdf_file/0031/92659/Maximising-the-benefits-of-700-MHz-clearance-Statement.pdf

³ https://www.ofcom.org.uk/_data/assets/pdf_file/0022/106933/700mhz-clearance-timescale-review.pdf?utm_source=updates&utm_medium=email&utm_campaign=700mhz-update

⁴ See Ofcom's 2017 Consultation 'Spectrum for audio PMSE: Proposed use of the 694 to 703 MHz guard band' https://www.ofcom.org.uk/_data/assets/pdf_file/0016/100942/700-mhz-guard-band-pmse.pdf

⁵ Commission Implementing Decision (EU) 2016/687 of 28 April 2016 on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016D0687&from=EN>

Decision sets out uses for which the 700 MHz band may be made available by Member States, including the option of use of the guard band by PMSE.

- 1.6 We consider that there are benefits in allowing PMSE users to have continued access to the guard band. Our decision takes account of our specific duties in relation to spectrum management, in particular securing the optimal use of the radio spectrum.
- 1.7 Continued access to the guard band by PMSE services is likely to secure the optimal use of this spectrum and maximise the benefits to UK citizens and consumers. We set out our reasoning in full in Section 3 of this statement.

2. Introduction

- 2.1 Our 2014 statement set out our decision to make available the frequencies between 694 and 790 MHz for use for mobile data services. The first 9 MHz of this frequency range forms a ‘guard band’ to protect DTT from interference from new mobile services.
- 2.2 Our October 2016 statement set out our decisions relating to key aspects of the RSC Decision and the 700 MHz clearance programme:
- we took the spectrum management decision to work towards accelerating the programme by 18 months and release the 700 MHz band for use for mobile data services in Q2 2020 (our target date for completion of 700 MHz clearance was confirmed in our October 2017 update⁶); and
 - we served notice to PMSE users who operate in the 700 MHz band that, from 1 May 2020, they will no longer have access to the spectrum in this band to deliver their services.
- 2.3 On 20 April 2017, we published a consultation⁷ detailing our proposal to allow PMSE users to continue to access the 700 MHz guard band beyond 1 May 2020. This statement sets out stakeholders’ responses to that consultation and our consideration of those responses. Having carefully considered the responses, we set out our decision to allow audio PMSE, namely wireless microphones, in-ear monitor systems and audio links, to continue to access the 700 MHz guard band beyond 1 May 2020.

European Commission decisions on the 700 MHz band

- 2.4 The RSC Decision specifies the harmonised technical conditions of use for the 700 MHz band for mobile data and other services (specifically, wireless audio PMSE equipment, PPDR radio communications and M2M communications). The band is to be made available for use for mobile data services by 30 June 2020 (in accordance with Decision (EU) 2017/899 from the European Parliament and Council⁸).
- 2.5 The RSC Decision also gives EU Member States the option to make all or part of the guard band between 694 to 703 MHz available for PMSE services.

⁶ https://www.ofcom.org.uk/__data/assets/pdf_file/0022/106933/700mhz-clearance-timescale-review.pdf?utm_source=updates&utm_medium=email&utm_campaign=700mhz-update

⁷ https://www.ofcom.org.uk/__data/assets/pdf_file/0016/100942/700-mhz-guard-band-pmse.pdf

⁸ Decision (EU) 2017/899 of the European Parliament and of the Council of 17 May 2017 on the use of the 470-790 MHz frequency band in the Union.

Legal context and analytical framework

Ofcom's specific duties and powers related to spectrum management

- 2.6 In making the decisions set out in this statement we have had regard to, and acted in accordance with, our statutory duties, including in particular our duty to secure the optimal use of the radio spectrum.
- 2.7 Ofcom's responsibilities for spectrum management are set out primarily in two Acts of Parliament which confer on us our specific functions, powers and duties in respect of spectrum (and the other sectors we regulate): The Communications Act 2003 (the '2003 Act') and the Wireless Telegraphy Act 2006 (the 'WT Act').⁹
- 2.8 Amongst our functions and powers in relation to spectrum are the making available of frequencies for use for particular purposes and the granting of rights of use through wireless telegraphy licences and licence exemptions.
- 2.9 Our principal duties under the 2003 Act, when carrying out our functions and exercising our powers, are to further the interests of citizens and consumers, where appropriate by promoting competition. In doing so, we are also required (among other things) to secure the optimal use of spectrum. We must also have regard to (i) the desirability of promoting competition in relevant markets; (ii) the desirability of encouraging investment and innovation in relevant markets; (iii) the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom; and (iv) the different needs and interests, so far as the use of the electro-magnetic spectrum for wireless telegraphy is concerned, of all persons who may wish to make use of it.
- 2.10 Additionally, in carrying out our spectrum functions, we have a duty under section 3 of the WT Act to have regard, in particular, to: (i) the extent to which the spectrum is available for use or further use for wireless telegraphy; (ii) the demand for use of that spectrum for wireless telegraphy; and (iii) the demand that is likely to arise in future for the use of that spectrum for wireless telegraphy. We also have a duty to have regard, in particular, to the desirability of promoting: (i) the efficient management and use of the spectrum for wireless telegraphy; (ii) the economic and other benefits that may arise from the use of wireless telegraphy; (iii) the development of innovative services; and (iv) competition in the provision of electronic communications services.
- 2.11 We have reached the decision set out in this document by reference to these statutory duties. Our view is that it is consistent with these duties. In particular, it reflects demand for spectrum for use for PMSE services. In doing so, they would secure optimal use of the spectrum.

⁹ The European Common Regulatory Framework for electronic communications (in particular, the Framework Directive and the Authorisation Directive) sets out the broad legal framework for how spectrum should be authorised and managed in the UK and aims to harmonise the regulation of electronic communications networks and services throughout the European Union

Impact Assessment

- 2.12 Section 7 of the 2003 Act provides that where we are proposing to do anything for the purposes of or in connection with the carrying out of our functions, and it appears to us that the proposal is important, we are required to carry out and publish an assessment of the likely impact of implementing the proposal, or a statement setting out our reasons for thinking that it is unnecessary to carry out such an assessment. Where we publish such an assessment, stakeholders must have an opportunity to make representations to us about the proposal to which the assessment relates.
- 2.13 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. As a matter of policy, Ofcom is committed to carrying out impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, “Better policy-making: Ofcom's approach to impact assessment”, on our website.¹⁰
- 2.14 In the consultation document, we set out, and consulted upon, the impact of our proposed decision (which we are now making). The analysis in that document was an impact assessment as defined in section 7 of the 2003 Act.

Equality Impact Assessment

- 2.15 Ofcom is also required by statute to assess the potential impact of all its functions, policies, projects and practices on the following equality groups: age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation. Equality Impact Assessments (EIAs) also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity.
- 2.16 The decision set out in this document follow the decisions we made in the 2014 and 2016 Statements to clear the 700 MHz band and the notice we gave to PMSE users about the use of that band. In reaching those decisions we conducted an EIA to understand if changes of use of the 700 MHz band could disproportionately affect any particular group of consumers or raise specific issues for groups that are protected under equality laws. In relation to the decision set out in this statement, we have not identified any further differential impact of our proposals in relation to the identified equality groups.

¹⁰ See Ofcom’s publication, ‘Better Policy Making: Ofcom’s approach to Impact Assessment’ https://www.ofcom.org.uk/_data/assets/pdf_file/0026/57194/better_policy_making.pdf

3. Use of the guard band for audio PMSE

Summary of proposals

- 3.1 In our consultation, we proposed to allow audio PMSE services to have continued access to the 694 to 703 MHz band for the following reasons.
- 3.2 PMSE users will lose access to the 700 MHz band from 1 May 2020. We considered that there would be a benefit in continuing to make the guard band available to those users in addition to alternative frequencies they can use, such as in the 470 to 694 MHz band and the 960 to 1164 MHz band.
- 3.3 The guard band frequencies would be a continuation of the 470 to 694 MHz band, currently used by PMSE users. As such, PMSE users may therefore be able to continue using existing equipment which tunes to these frequencies and avoid incurring the costs of moving to alternative bands.
- 3.4 Although there may be some risk of interference from mobile uplink transmissions in the adjacent band (703 to 733 MHz) depending on a number of factors such as frequency separation between the mobile transmitter and PMSE receiver, our provisional view was that PMSE users could apply a suitable frequency separation to ensure the necessary quality of service while maximising the utility of the guard band. We considered that, in most cases, PMSE users would be unlikely to operate immediately adjacent to the boundary.
- 3.5 It did not appear to us that there are viable alternative uses of the guard band in the UK other than for PMSE services (when considering the options of use identified in the RSC Decision). On that basis, allowing PMSE services to continue to operate will be more beneficial than the alternative of the spectrum being unused. We also considered that the economic benefits of the 700 MHz clearance programme would remain unchanged as a result of our proposal.
- 3.6 Our provisional conclusion was that our proposal to allow PMSE to continue to access the guard band would generate benefits for PMSE users and equipment manufacturers while preserving the benefits of the 700 MHz clearance programme. It would safeguard ongoing benefits that PMSE services provide to UK citizens and consumers and secure optimal use of spectrum.

Consultation question

3.7 In our consultation we asked the following question:

Question 1: Do you have any comments on our proposal to allow audio PMSE services to operate in the guard band from 694 to 703 MHz, and that this would be a benefit to PMSE users?

Overview of responses

- 3.8 We received nine responses to our consultation from PMSE stakeholders, including broadcasters. We have published seven of these on our website.¹¹ Two were marked by the respondent as confidential and are not published there, although we have incorporated non-attributed summaries of confidential responses in this statement. A list of the non-confidential respondents is included in Annex A1.
- 3.9 Generally, respondents were supportive of our proposal concerning use of the guard band. They did not disagree with our view that allocating the guard band to PMSE use would secure optimal use of spectrum. However, most also raised issues concerning spectrum quality if it were made available and how our decision in relation to the guard band might affect funding to PMSE equipment owners who would no longer have access to the 700 MHz band (a subject of a separate Ofcom consultation).
- 3.10 We provide a more detailed summary of responses in the following section, and our consideration of them, before setting out our decision.

Summary of Responses

Stakeholders broadly supported using the guard band for PMSE

- 3.11 A number of respondents (including Autograph Sound Recording Ltd, Better Sound Ltd, BEIRG, DTG) welcomed our proposal to make the guard band available for PMSE. Some, including BEIRG, noted that access to spectrum which will not contain DTT transmissions will be of benefit to the PMSE sector.
- 3.12 However, most respondents (including Autograph Sound, BBC, BEIRG, DTG and Sky) also expressed reservations relating to the unknown quality of the guard band spectrum and its suitability for the delivery of high profile PMSE events and live productions. The concerns raised relate to the risk of interference to PMSE from mobile uplink data services which would not be known until these services have been deployed in the adjacent 703 to 733 MHz band.

¹¹ The full text of non-confidential responses can be found on our website: <https://www.ofcom.org.uk/consultations-and-statements/category-1/700-mhz-guard-band-pmse>

- 3.13 The BBC, for example, noted that interference from mobile services could cause a disrupted viewing experience on television or cause loss or degradation of audio quality during outdoor music events. Until mobile services are deployed, they would not know how much interference there would be and in which locations spectrum would be useful.
- 3.14 Stakeholders also raised issues in relation to Ofcom's funding consultation.¹² One respondent stated that their support for our guard band proposal was subject to the guard band not being taken into consideration when determining PMSE equipment owners' eligibility for funding. One respondent to the consultation on funding support for PMSE equipment owners disagreed with the proposal to make the guard band available on the grounds that it may affect eligibility for funding.
- 3.15 Separately, two respondents, Autograph Sound and BEIRG, asked Ofcom to clarify the method of authorisation in their responses. Autograph Sound said that it should be available on a coordinated basis. BEIRG said that they would welcome detail on how access to the guard band would be authorised and that it makes most sense to allow access to the guard band spectrum on a coordinated basis.

Our response

Making available the guard band and unknown spectrum quality

- 3.16 We acknowledged in the consultation on the proposed use of the guard band that there may be some risk to PMSE users operating in the guard band from mobile uplink data services in the adjacent band, 703 to 733 MHz. It remains our view that PMSE users would, in most cases, be unlikely to operate immediately adjacent to the 703 MHz boundary and could apply a suitable frequency separation to ensure the necessary quality of service while maximising the utility of the guard band. The size of the frequency separation would depend on local factors and the PMSE requirement would be determined on a case by case basis by the PMSE user.
- 3.17 Many respondents commented on our proposal to make the guard band available for PMSE use by reference to how they might use the spectrum and their concerns about the uncertain quality of the spectrum.
- 3.18 We have considered these responses carefully. In our judgment, there would be benefits in making the guard band available to PMSE users - respondents to the consultation recognised the benefit of having additional spectrum available for use. We also consider that, by permitting continued access in this way, PMSE users may be able to continue using existing equipment which tunes to these frequencies and avoid incurring the costs of moving to alternative bands. At the same time, it would preserve the benefits of the 700 MHz clearance programme.
- 3.19 In addition, our duties under the WT Act include in particular securing the optimal use of the radio spectrum. Allocating the guard band to PMSE users would secure such use. When

¹² https://www.ofcom.org.uk/_data/assets/pdf_file/0021/100965/700mhz-band-pmse-funding.pdf

considering the options of use identified in the RSC Decision there are no other viable alternative uses of the guard band in the UK and it would therefore lie unused if we did not make it available for PMSE. Whilst we note respondents' comments about the uncertain spectrum quality, PMSE users will be able to assess for themselves whether and how they should use those frequencies, and in some cases, whether or not to accept the risks of interference from mobile. Where PMSE users can make viable use of this spectrum it will be a benefit to them and the services they provide to citizens and consumers.

Impact of guard band availability on funding for PMSE

- 3.20 Our decision on the use of the guard band is based on our duty to secure the optimal use of the radio spectrum. We will address the matters relating to the funding scheme for clearance, which were raised in this consultation, in the forthcoming statement on support for PMSE equipment owners.

Licensing of access to the guard band

- 3.21 We will make access to the guard band available on a coordinated basis. This is consistent with our view that the frequencies would be a continuation of the 470 to 694 MHz band, which is authorised for PMSE on the same basis (with the exception of channel 38 (606 to 614 MHz), access to which is authorised as part of the UHF Shared Licence).

Our decision

- 3.22 We consider there would be benefits to PMSE users from being able to access the guard band. As we consider there are no viable alternative uses under the options permitted in the RSC Decision, this is a better outcome than the spectrum being unused. The guard band frequencies would be a continuation of the 470 to 694 MHz band currently used by PMSE services. PMSE users will therefore be able to continue using existing equipment capable of tuning to the guard band frequencies and we think that there would continue to be a viable market for PMSE equipment that tunes to the guard band.
- 3.23 Having carefully considered stakeholder responses to our consultation, we have decided to allow audio PMSE users to have access to the 694 to 703 MHz band. We have made our decision on the use of the guard band on the grounds of spectrum efficiency. Use of the guard band by PMSE services is likely to result in the optimal use of spectrum and maximise the benefits to UK citizens and consumers.

A1. List of respondents

Non-confidential respondents

In alphabetical order:

Autograph Sound Recording Limited

BBC

BEIRG (British Entertainment Industry Radio Group)

Better Sound Limited

Mr Brian Copsey

DTG (Digital Television Group)

Sky