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# 700 MHz clearance programme timescale review

Review of progress, risks and readiness

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## About this document

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When confirming the timescales for the delivery of the 700 MHz clearance programme, we undertook to carry out a review of progress in August 2017. This document summarises our review and its conclusions.

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# 1. Executive summary and background

- 1.1 700 MHz Clearance is a programme through which some of the spectrum currently used by Digital Terrestrial Television (DTT) and Programme Making and Special Events (PMSE) licensees will be cleared of its existing users and made available for mobile broadband use. DTT services will be moved to alternative portions of spectrum and the 700 MHz band frequencies will cease to be available to PMSE.

## **We previously decided that the 700 MHz band should be made available for mobile broadband use by Q2 2020**

- 1.2 In November 2014, we decided to make spectrum in the 700 MHz band available for mobile data as soon as practicably possible<sup>1</sup>. Initial plans indicated that it would be possible to make the band available by the end of 2021. We continued to explore ways with the DTT Multiplex operators to complete the programme sooner than this.
- 1.3 Following further work, the DTT multiplex operators proposed a plan which would enable completion of clearance to be brought forward to Q2 2020. We subsequently consulted on the costs and benefits of making the spectrum available to this earlier timescale<sup>2</sup>.
- 1.4 In October 2016, we confirmed our conclusion that adopting the accelerated plan will best secure optimal use of spectrum<sup>3</sup>. Consequently, we have taken a spectrum management decision that we will work to bring forward release of the 700 MHz band to Q2 2020. Given that it is funding the programme, we discussed this decision with Government. The Government agreed that the proposal to clear the band by no later than Q2 2020 should be adopted.

## **The timescale would be subject to a review to be carried out in August 2017 - this report summarises our findings**

- 1.5 Alongside our announcement, we said that in August 2017 we would review the progress of infrastructure work and the target accelerated clearance date of Q2 2020. This report provides a summary of our review and its conclusions.
- 1.6 There are several contributing workstreams and sources of information that we have considered in our review. The main areas are listed below:
- Development of the frequency plan and progress towards international coordination agreements;
  - Status of the work planning infrastructure changes;

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<sup>1</sup> *Decision to make the 700 MHz band available for mobile broadband*, Ofcom statement, November 2014  
[https://www.ofcom.org.uk/data/assets/pdf\\_file/0024/46923/700-mhz-statement.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0024/46923/700-mhz-statement.pdf)

<sup>2</sup> *Maximising the benefits of 700 MHz clearance*, Ofcom consultation, March 2016  
[https://www.ofcom.org.uk/data/assets/pdf\\_file/0026/84176/maximising-benefits-of-700mhz-clearance.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0026/84176/maximising-benefits-of-700mhz-clearance.pdf)

<sup>3</sup> *Maximising the benefits of 700 MHz clearance*, Ofcom statement, October 2016  
<https://www.ofcom.org.uk/consultations-and-statements/category-1/maximising-benefits-700mhz-clearance>

- Infrastructure build programme progress;
- Knowledge gained from clearance events<sup>4</sup> carried out during 2017, including viewer support; and
- PMSE grant scheme

**The programme is on track to meet our target for completion in Q2 2020.  
700 MHz clearance is a large engineering project susceptible to delivery risks.**

- 1.7 All the workstream areas considered in our review are on track. Delivery of clearance events in the North of Scotland have proceeded well and to schedule. Preparations for the clearance events in 2018 are also proceeding to plan.
- 1.8 Digital UK, on behalf of the DTT Multiplex Licensees, carried out a review of the programme over the summer and concluded that activities are on track. We have also held a high level stakeholder meeting with the main programme stakeholders and all parties agreed that, subject to no significant unforeseen events occurring, the planned end date remains achievable.
- 1.9 The programme is a complex engineering implementation project which is subject to a number of risks that could delay completion. The most significant risks are:
- Prolonged periods of poor weather that delay work carried out externally, particularly the installation of antennas at the larger transmitters; and
  - unplanned occurrences that could cease infrastructure works (such as national emergencies or events of significant media interest) could jeopardise the overall timetable if they prevent work being carried out on the broadcast network during periods of intensive activity.
- 1.10 Within the project there is some ability to re-schedule events as the transmission company Arqiva has planned to carry out installation tasks at the earliest opportunity. This approach enabled Arqiva to re-schedule planned engineering activity to avoid the surprise general election during the 2017 build season with no impact to clearance timescales.
- 1.11 We conclude that the clearance programme will deliver to schedule and therefore expect the process to complete in Q2 2020 as planned.

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<sup>4</sup> We use the term 'clearance event' to describe when frequency changes are made at a transmitter and viewers need to take action to retune their TV equipment.

## 2. Our review

### Commentary on main programme workstreams

2.1 Our review concentrated on reviewing progress, forecasts and risks for the key workstreams contributing to delivery of 700 MHz clearance. These are set out under the headings below.

#### Frequency planning and coordination is proceeding to schedule

2.2 Good progress has been made in frequency planning with the frequency plans for all regions completed in June 2017. These are still subject to some optimisation as we conclude international agreements.

2.3 700 MHz clearance requires the UK to negotiate and agree new frequency plans with four Administrations: The Republic of Ireland, France, The Netherlands and Belgium.

2.4 We have completed and signed Final Agreements with Ireland and The Netherlands.

2.5 There is some technical planning work to complete with France relating to some of the smaller transmitters in the south of England (as well as some in France). Otherwise the plan for all main transmitters and other smaller transmitters is technically agreed and on track to being finally agreed before the end of this year.

2.6 We are also working towards completion of agreements with Belgium by the end of 2017 and do not expect any issues.

2.7 The effects of any uncertainty over the smaller transmitters can be incorporated into the plan as this affects only 20 of the UK's smaller transmitters.

2.8 Overall, the frequency planning and international coordination workstreams are delivering to schedule and risks are manageable.

#### Infrastructure Planning has made good progress with the scope of work and rollout plans agreed

2.9 Ofcom, Arqiva and the Multiplex Licensees are continuing to work to finalise the scope of infrastructure works required to deliver 700 MHz clearance.

2.10 A stable sequence for the planned frequency changes has been developed and the interactions and timings when changes will be made in the UK and for continental transmitters is now well understood.

2.11 The rollout plan is being refined as transition arrangements are developed in detail. Revised plans are typically produced between quarterly and half-yearly. Refinements now affect only a small number of the smaller transmitters.

2.12 The technical and rollout plans are now well developed and understood and are not a significant risk to successful delivery of 700 MHz clearance to schedule.

## **Infrastructure build works are progressing well and delivery of the programme to schedule is achievable.**

- 2.13 Infrastructure work is considered in two categories:
- a) 'airworks' - replacing broadcasting antennas at transmitters sites where the existing antennas will not function on the post clearance frequencies. Some of the transmitter structures are very tall – up to 300m in height; and
  - b) 'groundworks' – site preparation, then installation of temporary transmitters and combining equipment to carry the broadcast TV services while the permanent equipment is retuned to new frequencies.
- 2.14 During 2016 and early 2017, work has focused on airworks as that activity is most dependent upon favourable weather. During 2017, the programme has increasingly included groundworks for the clearance events in 2017 and early 2018.
- 2.15 Arqiva has derived a practical plan that considers available resources and supplier delivery ability and schedules airworks at the earliest opportunity at each site. This means that there is some time between when airworks are scheduled to complete and groundworks planned to commence or when clearance is to occur.
- 2.16 Some delays to airworks have occurred during 2017 because of poor weather. None of this has had an impact on the timings of any planned clearance events, nor on the overall programme timescale.
- 2.17 Airworks at several sites are expected to complete Q3/Q4 2017. Having reviewed the status of work at those sites, we are content that sufficient progress has been made and that adequate contingency plans are in place, should delays occur so that planned clearance dates in 2018 are not impacted.
- 2.18 A risk remains that prolonged poor weather or other events of national significance could result in infrastructure work ceasing for a period. Such an occurrence could threaten the overall timescale for clearance should it occur during an intensive period of infrastructure build-out or clearance events.
- 2.19 Progress on the infrastructure build workstream has been good across the programme. While some residual risks remain as described above, we judge that progress in 2017 has been sufficient to enable clearance events in early 2018 to complete as planned. The airworks programme in 2018 becomes less critical than in 2017 and we therefore expect fewer opportunities for significant delay to arise.

## **Viewers have not been unduly impacted by the clearance events carried out in 2017 and have received good support**

- 2.20 The first transmitter groups (in the North of Scotland) have since July this year been switching to their post-clearance frequencies. The process began on 26 July and completed on 4 October.

- 2.21 The required engineering changes are made overnight at the larger transmitters, usually from midnight on the planned day of the clearance event at each transmitter site. TV services should be restored by 6am on the morning of the clearance day.
- 2.22 TV services at the smaller transmitters may take longer to restore, as they are spread over a wider area, but all services should be restored no later than 6pm on the day of clearance.
- 2.23 Not all transmitters in the UK need to change frequencies and therefore not all DTT viewers will be affected by clearance, and cable and satellite viewers will not be affected at all.
- 2.24 For those that do need to take some action, the vast majority of householders will only need to retune their television sets. This requires them to press a few buttons on their TV remote controls.
- 2.25 Viewers are alerted to the forthcoming changes by on-screen captions that provide a number to call and a website where they can find further information. Digital UK has also been providing targeted publicity through local advertising.
- 2.26 In addition, the Government's Department for Digital, Culture, Media and Sport (DCMS) has been coordinating viewer support activities for those that require additional assistance. This service has been provided by the organisation DMSL and has been operating well for the clearance events that have already happened in the North of Scotland.
- 2.27 A small number of viewers (we estimate less than 1% of households) may need to replace their TV aerials if they are of an old type that does not work sufficiently well when the TV services move to their new frequencies. The few cases that arose in 2017 in the North of Scotland were assisted satisfactorily by the support programme.
- 2.28 The clearance events in 2017 have all been carried out to schedule. The level of calls to viewer support services has also been towards the lower end of expected ranges and feedback on viewer satisfaction levels has been good. This suggests that most viewers find the clearance process relatively straightforward and the information provided sufficient.

### **Preparations for 2018 and beyond are on track**

- 2.29 Digital UK on behalf of the DTT Multiplex Licensees carried out a review of the programme over the summer and concluded that activities are on track. Their review also made some recommendations for enhancing some project areas and we are continuing to work with them and other stakeholders to improve the delivery of the programme.
- 2.30 In July 2017, we held a high level stakeholder meeting with the main programme stakeholders and all parties agreed that, subject to no significant unforeseen events occurring, the planned end date remains achievable.
- 2.31 The Multiplex Operators, their agent Digital UK and transmission company Arqiva have continued to work to deliver 700 MHz clearance to the Q2 2020 date. As noted above, work in preparation for clearance events has been progressing well, including in preparation for events in 2018.

## Plans for a grant scheme for PMSE users are developing to schedule

- 2.32 Once 700 MHz clearance has completed, PMSE users will no longer have access to that portion of spectrum. We have given notice to PMSE users that they will need to cease use of frequencies in the 700 MHz band by 1 May 2020. We have made additional spectrum available for PMSE and equipment is being developed.
- 2.33 Government has decided that it will fund a grant scheme to support PMSE equipment owners that have to vacate the 700 MHz band earlier than expected.
- 2.34 We have agreed with Government that we will design and run a grant scheme and have consulted on our proposals for how the grant scheme should operate. We are considering responses to this consultation and will publish our statement by the end of 2017.

## We currently predict that the future 700 MHz mobile networks should be able to coexist with DTT with relatively low potential for interference

- 2.35 We have conducted analysis and field work to understand the potential for any interference from the future mobile networks into DTT. This led to the publication of our consultation on coexistence in May 2017<sup>5</sup>.
- 2.36 In our consultation, we set out our analysis and provisional conclusion that the number of households potentially affected by interference from mobile at 700 MHz will be similar to those currently affected by 800 MHz, around 0.2% of households. We note that estimates of the impact of 800 MHz mobile services on TV reception predicted a relatively large impact, which was not borne out in reality. We expect the impact of mobile services in the 700 MHz band to be similarly small.
- 2.37 We are currently considering responses to the consultation. This analysis will determine whether we should update our forecasts.
- 2.38 We believe that receiver filters, that can be fitted to a TV or set top box, will provide the most technically effective means to mitigate any interference.
- 2.39 This workstream is progressing to schedule and we expect plans for coexistence to be fully finalised by the time of the award of 700 MHz spectrum.

## Conclusion

- 2.40 Taking into account the areas of review, we conclude that that the clearance programme is delivering to schedule and we therefore expect the process to complete in Q2 2020 as planned.

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<sup>5</sup> *Coexistence of new services in the 700 MHz band with digital terrestrial television*, Ofcom Consultation, May 2017 <https://www.ofcom.org.uk/consultations-and-statements/category-3/coexistence-of-new-services-in-the-700-mhz-band-with-digital-terrestrial-television>