

Executive summary

Orange welcomes the opportunity to respond on Ofcom's consultation on the release of digital dividend review and the detailed award design. Orange has responded to the previous consultations on this release of spectrum and we look forward to further debate.

There is significant ongoing debate regarding the release of the digital dividend at both a European and UK level. Orange believes that Ofcom must work with the European Commission to maximise consumer and operator benefits from the release of this spectrum. A recent independent report by Spectrum Value Partners calculated that allocation of a harmonised 112 MHz of spectrum to mobile operators, as opposed to broadcasters, could generate up to €165bn.

Orange is disappointed that Ofcom's current proposals for the award of the upper part of the digital dividend will lead to almost no harmonisation between the UK and the rest of Europe for the provision of mobile broadband. Manufacturers will be unlikely to develop equipment solely for the UK market. The economies of scale just do not exist. At the end of the day, it is the consumer who will be disadvantaged as they will be unable to access the same services as their European counterparts, although we believe that the problem may actually be more significant for those consumers who travel to the UK.

Ofcom also has its own competition concerns regarding the possibility of a market structure emerging in which the acquirer(s) of this spectrum have a potentially stronger market position than the other players in this market. Ofcom believes that this situation could be exacerbated if the acquirer of the spectrum is one of the existing mobile operators ie O2 or Vodafone, who already have access to spectrum at lower frequencies.

Orange supports Ofcom's view above. However, we believe that the impact of such an acquisition by key players could be significantly lessened if, simply, more harmonised spectrum was made available. Currently, Ofcom, contrary to the rest of Europe which intends to exploit the full benefit of the digital dividend, has intentions to also use Channels 61 and 62 for DVB-T services, leaving only interleaved spectrum to be awarded. Orange believes that it would be possible to move these services to the lower band, releasing the full potential of channels 61 and 62 to be awarded. This would have the added benefit of improving border coordination with France who plans to release the entire 790-862 MHz band for IMT. Furthermore, Ofcom has currently allowed PMSE¹ users access to Channel 69, leaving the spectrum to be of questionable quality. We believe that PMSE users could make use of the white space in UHF band² thus releasing spectrum to be harmonised with Europe. Orange has already written to Ofcom regarding these issues in its letter dated 17 March 2008 to which we have still not received a satisfactory response.

If Ofcom implemented the proposals outlined above, it would make up to 2x30MHz of spectrum available for the provision of mobile broadband. We also believe that spectrum at the upper end of the band could then be awarded in lots of 5 MHz. This

¹ Programme Making and Special Events

² ECC TG4 report 24

would not only improve the opportunity for harmonisation of this spectrum with the rest of Europe but also reduce the complexity of the current award proposals, for both Ofcom and the potential bidders.

By harmonising this spectrum with Europe, equipment would also be available ensuring that UK consumers are able to roam abroad with similar services to those they can expect at home. We believe that it is critical that Ofcom gives serious consideration to this proposal prior to moving forward with its forthcoming award of the digital dividend.

We believe there is sufficient time in the process for this proposal to be given serious consideration. Ofcom is currently proposing an auction for summer 2009. This seems to be wildly optimistic, especially as one of the key issues which will assist in determining the appropriate band plan, the shorter term liberalisation of 2G spectrum, has not yet been resolved and the results of the studies proposed by the recent EC mandate on the digital dividend will not be available for at least a year.

With the current lack of equipment and harmonisation issues, we believe there is absolutely no market need for this spectrum to be awarded before 2011.

Any response made in this consultation paper is without prejudice to Orange's overriding view that this spectrum should be harmonised with Europe.

Availability and uses of the cleared spectrum

Question 1:

This executive summary sets out our proposals for the Digital Dividend Cleared Award. Do you agree with these proposals?

Orange has responded in detail to each of the questions, as appropriate, in the following response.

Question 2:

Do you agree with our proposal to include the interleaved spectrum in channels 61 and 62 in the cleared award?

Orange does not support Ofcom's proposals to include the interleaved spectrum in Channels 61 and 62. We believe that DVB-T users in this spectrum should be moved to the lower band as this would improve border coordination with the rest of Europe who will use channels 61 to 69 MHz for mobile broadband services. This would free the upper band to be awarded in lots of 5 MHz and improve spectrum efficiency as there would be a reduced need for coordination at the uplink/ downlink boundaries around the UK.

Question 3:

Do you agree with our proposal not to allow licence-exempt use of channels 61 and 62 by cognitive devices?

Ofcom has proposed licence-exempt use of the interleaved spectrum by cognitive access subject to verification that it will not cause harmful interference to other users.

However, Ofcom does not propose the use of cognitive devices in the cleared spectrum as there is far more uncertainty about the types of service and technology that will be used in this spectrum. ECC Report 24 from CEPT clearly states that cognitive radio "technology is at a very early stage". Hence, Orange supports Ofcom's view and believes that it is premature to freeze the use of 16 MHz prime spectrum with uncertain technologies and usages with licence-exempt cognitive services. There is already limited spectrum available for use by mobile operators and it would not be appropriate to further reduce the quality of the spectrum that is proposed to be made available. Potential bidders require certainty regarding the quality of the spectrum they are purchasing.

Orange entirely supports Ofcom's view not to allow licence-exempt use of channels 61 and 62 by cognitive devices.

Question 4:

Do you have any comments on our assessment of the most likely uses of the cleared spectrum and the amount of spectrum required for these services? Are there any other potential uses that we should consider?

Whilst we would support Ofcom's planned spectrum packages of 5 MHz, we would continue to highlight our concerns regarding harmonisation with spectrum in Europe. If Ofcom continues to consider its current award proposals, there will be an extremely limited amount of spectrum that will be harmonised with Europe and a more limited spectrum that could accommodate common channel bandwidths in UK and in the rest of Europe band plan terminal implementations'. This will inevitably lead to a UK specific solution, which will mean increased handsets costs for both operators and consumers, assuming there is a willingness to produce country specific handsets by the manufacturers.

In summary, Orange would support the use of the released spectrum for mobile communication services.

Question 5:

Do you agree that we should proceed with our current timetable, with a view to holding the cleared award in summer 2009?

Ofcom's position is that it will hold the award for the digital dividend as quickly as possible, consistent with the auction design set out in the consultation document. Ofcom considers that an early award is in the interests of citizens and consumers because of the benefits that should follow, linked to the potential for additional competition and innovation.

The current proposed timetable for the award set out in the consultation proposes publication of the Information Memorandum and draft Regulations in late Spring 2009, with the award commencing in Summer 2009.

Orange strongly believes that Ofcom's proposed timetable is far too early and as already discussed there is still some considerable work to be completed to try to reach further harmonisation with Europe. We believe that Ofcom should take account of the need for manufacturers, networks operators and end users who would benefit from increased spectrum harmonisation and the subsequent economies of scale for equipment.

Orange would encourage Ofcom to give full consideration to the forthcoming results of the ongoing EC and CEPT studies and recommendations that are envisaged in late 2009. Without this harmonisation, there is just not sufficient spectrum being awarded in the UK for mobile communications. In any event, it is not clear why there is such a rush by Ofcom to award the spectrum 'in the interests of citizens and consumers'. Without any equipment available, there can be no services. The spectrum will not be released in London until 2012, hence cannot be used until after this date.

Ofcom has recently announced that the 2.6GHz award will be not be held during September and October. A statement on 2G liberalisation is anticipated in Spring 2009.

Surely, it makes sense to resolve these key outstanding related issues prior to awarding more spectrum for similar services.

Orange strongly believes that Ofcom's proposed timetable is far too early and that further harmonisation with Europe should be secured.

Question 6:

Do you have any views on the appropriate notice period for temporary PMSE access to channels 63-68, and/or on whether or not extend temporary access to channels 31-40?

Recently, the FCC in the US announced that it will ban PMSE systems from channels 52 to 69 to boost broadband. This decision will drastically limit the availability of PSME equipment for channel 69 in UK.

Ofcom has previously indicated that it would give six months notice to PMSE use of channels 63-68. Ofcom now believes it would be possible to give 12 months notice and extend the temporary access to channels 31-40.

Orange would support an increased notice period, especially in light of the proposed auction timetable.

Question 7:

What are your views on deferring the start date for rights to use cleared spectrum in London to help meet the need for wireless microphones and other audio links for the London 2012 Olympic Games and Paralympic Games?

Ofcom highlights three options in its consultation:

- not to defer the start date for rights to use any cleared spectrum in London beyond DSO (expected Spring 2012)
- to defer the start date for rights to use the upper sub-band (only) in London until after the Games end (end early September 2012); or
- to defer the start date for rights to use all the cleared spectrum in London (excluding channel 36) until after the Games end (ie channels 31-35, 37-40, 63-68 and interleaved 61-62).

For the sake of a difference in timing of six months, Orange believes that it would be preferable to defer the start date for rights to use the spectrum until after the Olympics. However, Orange would be supportive of a significant change in timing (ie 12 months or more) for the start date for rights to use the spectrum. Fundamentally, it is more important to us to resolve the auction award timetable.

For a difference in timing of only six months, Orange does not have a firm view on the proposals presented above.

Technical licence conditions

Question 8:

Do you agree with the use of spectrum usage rights (SURs) as the approach for defining consistent technical licence conditions (TLCs) for this award?

Orange believes that SURs should not be considered as the sole Technical Licence Condition (TLC) to manage co-existence between technologies.

We believe that Ofcom's argument regarding the complexity of neighbouring systems requiring use of SURs is, to an extent, driven by Ofcom's premature attempt to proceed prior to resolution of European harmonisation initiatives, as already discussed.

Effective harmonisation of the 790-862MHz band would enable simplified neighbour coexistence where Block Edge Masks, combined with technology standardisation, would potentially offer a viable TLC to manage co-existence (in a similar way to that currently envisaged for the 2.6GHz spectrum).

SURs in this band are being considered by SE42 in CEPT. Orange would support this work as long as there is sufficient consideration of coexistence technical requirements and there is no harmful interference between different services.

Question 9:

Do you have any comments on the SUR parameters listed in Tables 5.1 to 5.5 and the assumptions used to derive them?

Ofcom has included standard SUR tables for DVB-T, MMS, FDD Downlink, FDD uplink and TDD (see annex I of this response).

Orange strongly believes that Ofcom must wait for completion of the harmonisation work in SE42 and other CEPT task groups and projects teams prior to establishing specific values.

Question 10:

Do you agree with our proposals for managing interference between new services in the DDR cleared spectrum? (5.54 – 5.57)

In its consultation document, Ofcom clearly recognises the balances to be struck between limiting the risk of harmful interference between neighbouring licensees and unnecessarily sterilising spectrum by specifying a guard band that is too large.

ECC TG4 report A states there is no requirement for a guard band between mobile and broadcast use of the spectrum. In the interest of harmonising this spectrum at a European level, Orange would support this view provided that any required interference mechanisms and probabilities are adequately analysed, particularly in the lower block, at time of award on a case by case basis.

Question 11:

Do you agree that the most efficient and effective means of preventing interference to the existing DTT services is by the addition of a protection clause to licences in the cleared spectrum? If not, what alternative approach would you suggest?

See previous response!

Question 12:

Do you agree that the best way to finalise the protection clause approach and to address the practical implementation issues is through direct engagement with interested stakeholders? With which stakeholders should we engage?

Orange believes that the best way to manage coexistence issues is by way of ex-ante spectrum management with open and direct engagement with relevant stakeholders.

Question 13:

What do you believe would be the implications of protecting indoor/settop antennas? Should a distinction be drawn between set-top antennas and larger antennas designed for external reception of TV signals that are loft-mounted?

Orange is of the view that the protection of set-top boxes and indoor portable is not part of the GE-06 agreement and OFCOM should continue to only ensure the protection of the national requirements of RRC-06.

Question 14:

Do you agree with our proposals for managing interference between new and existing users?

See response to Q12.

Question 15:

Do you agree with the proposed propagation models and databases to be used for compliance assessment?

Ofcom proposes using the following propagation models along with terrain and clutter databases listed below:

- Path loss for base station to mobile, base station to base station and mobile to base station interference scenarios: propagation model ITU-R P.1546-3.
- Path loss for mobile to mobile interference scenarios: propagation model ITU-R P.1411-4.
- Terrain database: Ordnance Survey "Panorama DTM" 50m resolution digital terrain map data.

- Clutter database: The 50m resolution clutter database produced by Infoterra.

Orange does not support the use of ITU-R P.1546-3 and ITU-R P.1411-4 propagation models without further evidence of empirical study in relation to the difference in prediction versus empirical measurement in dense urban, urban and rural geotypes. Evidence of limited empirical study in relation to ITU-R P.1411 is available in 'Predicting path loss between terminals of low height' Phase 2 Final Report Red-M published in February 2007. However, there is no evidence of empirical validation in relation to ITU-R P.1546-3 which is essentially a broadcast model.

Orange has highlighted the necessity of applying empirical evidence to support and validate propagation models in previous consultation responses regarding the implementation of Spectrum Usage Rights (SURs).

Question 16:

Do you have any comments on the transmit masks set out in paras 5.128 to 5.130?

The ETSI standards referenced in 5.312 describe the FDD UTRA masks. However, it is likely that the digital dividend could be used for the deployment of LTE networks where parameters are not yet defined (only in 3GPP 36.101 and 36.104). More importantly, in order to ensure ex-ante protection of DVB-T, we believe further studies on blocking are necessary...

Non Technical licence conditions

Question 17:

Do you agree that where the cleared spectrum is used for the operation of a DTT multiplex, we should replicate the ownership restrictions from the Broadcasting Act regime relating to (a) local authorities, (b) political bodies, (c) religious bodies and (d) bodies exerting undue influence but not replicate restrictions relating to (e) broadcasting bodies and (f) advertising agencies?

Orange does not wish to comment.

Question 18:

Do you agree that we should facilitate interoperability between existing DTT multiplex operators and new operators using cleared spectrum?

Orange does not wish to comment.

Question 19:

We welcome views on the relative merits of such an approach to information provision; in particular concerning the type of information that may be helpful and any impacts that publication of information might have both on licence holders and the wider spectrum market.

We believe that there are still some issues that require resolution around the licence duration. The stated current licence term is until around 2027. Ofcom states its view that the initial term should be sufficient for an operator to be able to earn an appropriate return on the investment and that it believes that a 15 year term is the minimum operational period. However, Orange believes the minimum period should be in the region of at least 20 years. It is just not possible for any bidder winning a licence to launch a network the day the licence is granted. Equipment needs to be sourced and a network rolled out. From our experience, it takes around [four] years to reach a period where revenues can be earned from a new network.

In addition, there is currently no equipment available for use in this spectrum band. Even harmonising the spectrum with Europe, we will not see equipment developed until 2012 at the earliest. If Ofcom continues with its current UK specific band plan, it is doubtful that any equipment will be developed until far beyond this date and then at significant cost as there will not be the economies of scale to bring down costs. In summary, we do not anticipate prototype equipment will be available until 2012 for use in this spectrum.

Ofcom also discusses the provision of information to facilitate optimal spectrum use. Orange already submits such information for publication to Ofcom. We would not anticipate our obligations changing. However, we would expect a similar provision to be applied across all users of the released digital dividend sector.

We look forward to commenting in more detail in a further consultation.

Orange would continue to support a twenty year licence.

Spectrum Packaging

Question 20:

Do you agree that the cleared award should include both 8 MHz lots for DVB-T and MMS TLCs and 5 MHz lots for FDD and TDD TLCs across the band?

Orange supports 5MHz lots for FDD technical licence conditions across the band.

Question 21:

Do you agree that the cleared award requires a mixture of frequency specific and frequency-generic lots to be offered in the auction?

Orange comments on the detail of the auction design in the following section.

Orange's comments on the appropriate mix of the frequency specific and frequency generic lots are without prejudice to Orange's overriding view that there needs to be further work completed to harmonise this spectrum with Europe.

Despite Ofcom's assertion that the a mix of frequency specific and frequency generic lots in the upper band will ensure the most efficient use of the spectrum and the simplest auction design, it actually seems very complicated and, we believe, is unlikely to achieve the most efficient use of the spectrum.

It is unlikely that there will be any harmonised spectrum for mobile communications available in Europe in the lower band. To this end, we believe that the lower band should be awarded in 8MHz lots, whereas the upper band will be of most benefit for the provision of mobile communications. Orange would therefore encourage Ofcom to consider awarding the upper band in lots of 5MHz to maximise benefits for mobile consumers.

To achieve the maximum benefits for mobile communications as a result of the digital dividend release, we believe that the whole of the upper band should be awarded in 5 MHz lots.

Question 22:

Do you agree with the proposed outline definition of lots suitable for MMS, DVB-T, TDD and FDD applications?)

Despite seemingly ensuring that the potential arrangements of the spectrum is aligned with the work ongoing in CEPT, TG4, Orange is extremely concerned that Ofcom's current proposals do not give the full picture.

Currently, Ofcom proposes that Channels 61 and 62 should be awarded as interleaved spectrum to accommodate the use of DVB-T. Furthermore, Ofcom currently proposes that Channel 69 is used for PMSE. These two provisions alone mean that the spectrum cannot be fully utilised for mobile communications. The recent Spectrum Value

Partners³ calculates that the allocation of this spectrum to mobile communications as opposed to broadcasting could generate up to €165bn across Europe. As UK is one of the leading providers of mobile communications in Europe, it is fair to say that a substantial percentage of this benefit could be derived from the UK and for the benefit of the UK consumer.

Orange therefore suggests the following to ensure that the digital dividend is deployed in such a way as to maximise benefits for the UK consumer:

- Relocate DVB-T in Channels 61 and 62 to the lower band, it is not possible for DVB-T to use this spectrum efficiently due to the guard band issues
- Relocate PMSE in Channel 69 to the white spaces in the UHF band, or another spectrum band, such as the 870-876 MHz and 915-921 MHz.

The current value of PMSE equipment is less than £10m in the UK, compared to the possible benefits that this spectrum could bring to the UK consumer for mobile communications. There will be just one opportunity to release this spectrum and it is essential that Ofcom ensures that the spectrum is released in the manner which maximises benefits to the UK. In fact, the FCC is proposing a ban on PMSE equipment in the UHF channels from channels 52 to 69 in the US and is considering whether to allow companies to use the airwaves spaces between television channels for transmitting wireless broadband signals⁴.

Moreover, the studies made by RTT (<http://www.rttonline.com>) and already submitted to OFCOM on the flexibility in the UHF band clearly indicate that the manufacturers are unwilling to develop specific equipments for specific countries.

It would seem contrary to Ofcom's stated objectives for the efficient use of spectrum not to relocate the current users of Channels 61 and 62, and 69 to alternative spectrum allocations.

Taking the above into consideration, Orange is unable to support Ofcom's current proposals for the appropriate lots suitable for MMS, DVB-T, TDD and FDD applications. We believe this area needs additional consultation and consideration prior to a final decision.

Question 23:

Should the flexibility to bid for lots defined on both fixed and variable frequency rasters be preserved in the auction? If not, which are preferred?

See response to above question.

³ <http://www.spectrumstrategy.com/Pages/GB/perspectives/Spectrum-Getting-the-most-out-of-the-digital-dividend-2008.pdf>

⁴ www.fcc.gov

Question 24:

Do you agree with the proposed basis for awarding Channel 38 as a distinct lot in the auction?

Orange has no comment.

Question 25:

Do you agree with the proposed structure of frequency rules for allocating different licence types in the auction? Are there any amendments that would improve the efficiency of spectrum allocation via an auction?

We are extremely concerned about the complexity of this proposed award. Firstly, Orange strongly believes that the issues discussed to date need to be fully resolved prior to any discussion around award packages and timing. It is unclear to us why there is a need to resolve all issues in parallel. We believe that there is sufficient time available for the issues to be resolved in sequence. This will enable stakeholders to engage more fully in the debate and to gain certainty at each point before moving onto the next step. Surely a series of shorter, more focussed consultation is far more appropriate than lengthy tomes attempting to cover every eventuality.

Secondly, the current proposals, whilst leaving as much flexibility to the market as possible is actually far more likely to result in an inefficient spectrum award. At times, it seems, in its enthusiasm to implement technology and service neutrality to the market, that Ofcom has lost sight of the commercial issues that face today's operators. Any potential bidder in the auction needs as much certainty as possible in order to value the spectrum effectively. With such a large amount of unknowns being proposed by Ofcom, it will be almost impossible for any bidder to value this spectrum. This is exacerbated by Ofcom's award timetable, proposed for Summer 2009, and the lack of clarity around the 2G liberalisation issues and the 2.6GHz award.

Ofcom has a responsibility to its stakeholders to try to ensure as much certainty as possible in any proposed award.

Question 26:

Do you agree with our proposal to proceed on the basis of UK-wide lots?

Orange is a national operator, which includes provision of mobile services in Northern Ireland. We believe that the spectrum should be awarded on a UK wide basis, including Northern Ireland. Consideration should be given to the timing of the award in the Republic of Ireland, with all attempt made to ensure a simultaneous award.

Question 27:

Do you favour including the available cleared spectrum in (a) Guernsey and (b) Jersey in the geographic coverage of the licences to be awarded? If not, what approach do you favour instead?

Orange has no comment.

Auction format and rules

Question 28:

Do you agree that the combinatorial clock auction is the most suitable auction design for the cleared DDR award?

Orange agrees with Ofcom that the most suitable auction design for the cleared digital dividend award is a simultaneous, multiple round, combinatorial clock auction. However, as already discussed, we believe the spectrum packaging issues have not yet been fully resolved. In fact, following on from Ofcom's discussion regarding grouping together spectrum in relative economic blocks, resolution of the spectrum packaging for FDD lots, should help to eliminate this issue leading to a more efficient auction outcome. It will also minimise the extreme complexity that this award now entails.

Although Ofcom appears to have given considerable thought to the needs of the potential bidder, it will still be very difficult to value this spectrum efficiently. To minimise some of these risks, Orange would support as much visibility as possible of information throughout the award process. In addition, we would suggest that Ofcom ensures that there is sufficient time from the end of the 2.6GHz award before the Information Memorandum and draft Regulations are published, to ensure that any lessons learnt as a result of the 2.6GHz award can be incorporated.

Question 29:

What potential simplifications, if any, could be made to the proposed lot structure for DVB-T, MMS, TDD and FDD lot categories which would still reflect the most important differences in value between lots?

It is clear that the current lot proposals lead to an extremely complex and challenging award. Not least for Dotecon who are designing the software. The complexity is reaching such a point, with analysis and calculations being completed on numerous computers that it will be impossible for any bidder to be able work out the detail behind the rules. Again, we would reiterate that there is merit in resolving the issues around the spectrum packaging first and then agreeing the auction format.

Orange's proposed simplification to the process would be to move DVB-T from Channels 61 and 62 into the lower band, move PMSE users from Channel 69 into the white spaces of the spectrum band, allocate lot sizes of 5MHz with a defined band plan, harmonised with Europe.

Question 30:

Do you have any comments on our proposals for the Application and Qualification Stages of the combinatorial clock auction for the cleared DDR award, including our proposals for initial deposits?

Orange supports Ofcom's current proposals for the Application and Qualification Stages of the award process.

Question 31:

Do you consider that it is important to distinguish relative weightings in advance between the eligibility points of the different 1 MHz blocks available in this award? If so should this be restricted to channels 36, 38, 61 and 62 and what do you consider these relative weightings should be?

The addition of relative weightings between blocks, dependant upon the type of usage, adds even more complexity to this award. For Ofcom to attempt to assess the relative merits of any service and apply a weighting seems entirely contrary to everything that Ofcom is attempting to manage with this award. Ofcom has always stated that the bidder who values the spectrum most will bid the most. What would be the point in applying relative weightings between services to remove the opportunity to assess who values the spectrum most.

We would reiterate that the best way to manage this situation is for Ofcom to assign the upper band in 5 MHz blocks and the lower block in 8 MHz blocks.

It is not appropriate for Ofcom to apply relative weightings.

Question 32:

Do you have any views on whether an ex ante eligibility points activity rule or a revealed preference activity rule should be used in this award? (8.105 – 8.116)

Whilst a revealed preference rule, which provides bidders with an incentive to reveal which combination of lots they prefer at the given relative prevailing prices, in preference to all other available combination of lots, may be attractive as it should assist bidders to understand the relative values of the spectrum packages and the intentions of their competitors, in reality it may just add further complexity to the award process.

Ofcom's current rule regarding eligibility points is relatively straightforward and has gained recognition within the industry as a result of preceding awards. However, it may be that Ofcom can develop a relatively straightforward revealed preference activity rule that may be of assistance to bidders in this very complex award.

Question 33:

Do you have any views on whether there should be restrictions on bidders' ability to bid on multiple technical licence types within single package bids or between different rounds of the auction and whether bidder association rules should potentially be adjusted to cater for any such restrictions being imposed?)

There appears to be so many dimensions to this award that Ofcom is trying hard to find ways to manage the complexity. Again, by simply allocating lots of 5 MHz in the upper band and 8MHz in the lower band, many of these issues can be overcome.

Orange would support a restriction on a bidder's ability to bid on multiple technical licence types – unless it was genuinely interested in different licence types under different business cases, depending upon the value of the spectrum during the award. It has to be said that, given its stance on technology and service neutrality, it is not clear how Ofcom would be able to implement such a rule.

It is far more appropriate for Ofcom to establish the spectrum lots prior to the award taking place rather than these convoluted bidding rules to manage the plethora of potential outcomes that are possible.

Question 34:

Do you have any further comments on any aspect of our proposals for the Principal Stage of the combinatorial clock auction for the cleared DDR award?

Orange would support the inclusion of a number of extension rights for each bidder, say three. It is likely that this award will be very complex and it is quite possible that the results could vary dramatically between one round and the next. An extension right would enable a bidder to 'stop' the award for additional period of time, say one hour, in order to assess its position. It is not clear how many extension rights each bidder receives and whether it would be for use in an example such as the one above, or in a practical case where there is an issue with the bidding tool.

Whilst we understand Ofcom's concerns regarding strategic bidding in the event of too much information being known, we believe there are auction rules to guard against this type of behaviour. In fact, it is more important that bidders have a maximum amount of information available to them to help efficient decision making and to value the spectrum. It is particularly important in this spectrum as there are so many dimensions to it and such a large number of unknowns.

Question 35:

Do you have any comments on any aspect of our proposals for the Assignment Stage or the Grant Stage of the combinatorial clock auction for the cleared DDR award? (8.168 – 8.185)

Again, the Assignment Stage seems to be extremely complicated. However, whilst Ofcom pursues its current auction proposals, there seems little option but for them to manage the process and the outcome using another large complicated computer program.

Promoting competition and efficiency

Question 36:

Do you agree with our approach to assessing whether the award of cleared spectrum fully promotes competition and efficiency? (9.1 – 9.25)

Orange mainly agrees with Ofcom's approach to assessing whether the award of cleared spectrum fully promotes competition and efficiency. However, we do not believe that sufficient consideration has been given to the steps prior to the auction design and packaging.

Throughout its consultation Ofcom seems to accept that there are some competition issues that need to be managed, and it attempts to do so by increasing the complexity and depth of the auction rules. In effect, the auction rules then just try to manage a situation where basically a spectrum award can never be truly technology neutral.

By its own admission, Ofcom also draws attention to the possibility that its current approach is likely to limit the amount of spectrum available, hence the number of mobile broadband networks⁵. Orange will comment on this aspect later. However, as we have proposed throughout this document, we believe that moving the DVB-T users in Channels 61 and 62 to the lower band coupled with moving the Channel 69 PMSE users into the centre FDD gap, Ofcom will be going some way towards ensuring that there will be sufficient spectrum available for each of the existing MNOs.

Orange would be interested to understand Ofcom's views on this suggested approach.

Question 37:

Do you have particular concerns about possibilities for award outcomes to fail to fully promote competition in downstream markets or to result in inefficient use of spectrum? If so, please explain what these are and provide supporting evidence. (9.1 – 9.25)

See response to above question.

Ofcom's current plans to award this spectrum on a UK specific basis, fails to fully consider the impact on mobile broadband consumers in the future. Ofcom's current proposals would lead to almost no harmonised spectrum in this frequency band between the UK and the rest of Europe. This will lead to a lack of mobile broadband services available for the consumer, unless there is a manufacturer that will provide equipment for a UK market. This will undoubtedly be at a significant cost as the economies of scale will just not exist.

With a UK specific solution, there may also be roaming issues as consumers move between one country and another. Roaming is an essential feature of mobile broadband and it will not be acceptable for any operator not to support it.

We would be happy to meet with Ofcom to discuss this issue in more detail and the provision of supporting evidence.

⁵ 9.10

Question 38:

Do you agree with our view that we should introduce a general safeguard cap aimed at promoting diversity of spectrum holdings? Do you have views concerning the level of such a cap?

Orange's supports the view that there are no use it or lose it obligations or rollout obligations.

Generally, we would support the inclusion of a safeguard cap in an award process to ensure that one operator would not be able to dominate the market. However, in this instance, we believe that there are more pressing issues that need to be resolved prior to a safeguard being imposed. It is also surprising that such a high spectrum cap of 50MHz has been set, particularly in the case of mobile broadband.

Question 39:

Do you agree with our proposals to include an information provision licence condition to help facilitate efficient secondary trading?

Orange supports Ofcom's view that there is no need for rollout conditions or use it or lose obligations.

In addition, Orange is supportive of spectrum trading and supports the additional provision of information by all licensees in order to facilitate efficient trading.

Question 40:

Do you agree with our view that we should not apply any other general remedies in the cleared award?

Orange supports this view.

Question 41:

Do you agree with our identification of the three areas requiring further attention?

Ofcom has identified that the three major areas that require further attention are:

- Broadcasting
 - Sky purchase of cleared spectrum for pay TV services
 - ITV acquisition of cleared spectrum to deploy additional DTT multiplex(es)
 - NGW/ Arqiva acquire cleared spectrum to deploy additional DTT multiplex(es)
 - PSBs (other than ITV) purchase cleared spectrum to deploy additional DTT multiplex(es)
- Mobile Broadband

- Cleared spectrum is purchased to provide a 3G or NGM network
- o Mobile Multimedia Services (MMS)
 - MNO (or consortium of MNOs) purchases cleared spectrum in order to provide network for own MMS service, or to provide a wholesale network service
 - Broadcaster purchases cleared spectrum in order to provide won end-to-end MMS service
 - Broadcaster purchases cleared spectrum in order to operate a network and to provide a wholesale network service to other MMS providers.

Of these potential outcomes, the only ones that are considered in more detail are the Sky purchase of cleared spectrum, the NGW/ Arqiva acquisition of cleared spectrum and the purchase of cleared spectrum to provide a 3G or NGM network using the low frequency spectrum.

Orange would support Ofcom's analysis.

Question 42:

Do you agree with our assessment that the limitations on the amount of cleared spectrum available for mobile broadband applications, and the particular advantages of sub 1GHz spectrum, could result in an outcome where there are limits on the level of competition possible in the provision of these services?)

Orange does believe there is an issue here that may require some resolution. However, it would appear to us that Ofcom is considering each of the three significant spectrum issues: 2.6GHz award, 2G liberalisation and release of the digital dividend in a rather piecemeal manner.

The key issue here is to consider the spectrum that each operator in the mobile market has access to. Whilst the 2.6GHz has some overlap with the 2G spectrum liberalisation issue, it has less with the release of the digital dividend. However, consideration of the 2G liberalisation is still, after many years, under debate. A consultation is anticipated in September, with a statement due in the Spring. With the synergies between the spectrum properties, it is clearly an issue that needs to be clarified and resolved prior to the award of the digital dividend.

Orange's view of the 900MHz spectrum allocations is that it is a legacy issue that needs to be resolved between the existing operators. From Ofcom comments and analysis in this consultation document, it would appear that Ofcom tends to concur with Orange's view.

Orange suggests that a detailed consultation to further consider these issues in detail is held.

Question 43:

Do you think that a soft spectrum cap on either (a) the cleared spectrum suitable for mobile broadband applications alone, or (b) the holding of any sub 1GHz spectrum suitable for mobile broadband applications, which would trigger action if a significant competition concern emerges in relation to the market structure in the future mobile broadband market, could be an appropriate approach to these concerns?

It would seem to Orange that the first issue to consider in detail is the spectrum that is to be allocated. We just do not believe that Ofcom has given sufficient consideration to the possibility of clearing channels 61, 61 and 69. Doing so would not only ensure harmonisation with Europe but would also provide additional spectrum for mobile broadband applications.

A secondary consideration should then be to consider a spectrum cap. However, until there is some clarity over the 2G liberalisation issue, it is difficult to see how Ofcom will be able to apply a spectrum cap as it will not know to whom to apply it to.

Question 44:

Do you agree with our assessment that issues in the pay TV market are not at this stage primarily an issue for the cleared award?

Orange has no comment on this issue.

Question 45:

Do you agree with our initial assessment that we should not intervene further in the cleared award to remedy any potential impact on competition resulting from the holding of cleared spectrum by NGW/Arqiva?

Orange has no comment on this issue.

Impact Assessment

Orange notes that the impact assessment only addresses individual elements of the proposal, and not the proposal as a whole. This does not give a holistic view of the impact that the proposals will have on the outcome.

There is no consideration of the impact of not aligning with Europe.

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Annex I

Interference between licensees with the same licence type in the cleared spectrum

Table 5.1: Standard SUR for DVB-T

	PFD at 1.5m [dBW/m²/MHz]	PFD at 10m [dBW/m²/MHz]
In-band PFD	- 81	- 65
Out-of-band PFD at the centre of adjacent channel	-141	- 125

Table 5.2: Standard SUR for MMS

	PFD at 1.5m [dBW/m²/MHz]	PFD at 10m [dBW/m²/MHz]
In-band PFD	- 54	- 38
Out-of-band PFD at the centre of adjacent channel	-114	- 98

Table 5.3: Standard SUR for FDD Downlink

	PFD at 1.5m [dBW/m²/MHz]	PFD at 10m [dBW/m²/MHz]
In-band PFD	- 60	- 42
Out-of-band PFD at the centre of adjacent channel	-106	- 88

Table 5.4: Standard SUR for FDD uplink

	PFD at 1.5m [dBW/m²/MHz]	PFD at 10m [dBW/m²/MHz]
In-band PFD	- 81	- 63
Out-of-band PFD at the centre of adjacent channel	-112	- 94

Table 5.5: Standard SUR for TDD

	PFD at 1.5m [dBW/m²/MHz]	PFD at 10m [dBW/m²/MHz]
In-band PFD	- 59	- 41
Out-of-band PFD at the centre of adjacent channel	-102	- 84