Vodafone's response to Ofcom's consultation

"Spectrum pricing for terrestrial broadcasting"

May 2013

Spectrum pricing for DTT

Summary

Vodafone welcomes the opportunity to respond to this consultation. Our interest in the issue of the appropriate methodology and charging levels to apply to spectrum pricing for terrestrial broadcasting arises from two factors:

- Mobile operators' spectrum is in part located in bands that are adjacent to the DTT bands;
- The UHF spectrum at 700MHz currently in use by DTT has been suggested by Ofcom, the EU and other bodies as suitable for potential designation for mobile operator use, to assist with providing capacity for the future increase in mobile traffic.

We are concerned to ensure that mobile and DTT are treated in an equal manner with respect to spectrum fee charging. Our views on the issues raised by Ofcom in this consultation are largely supportive of Ofcom's provisional conclusions.

- We agree with Ofcom that it is correct in principle to set charges for DTT at AIP levels because this is the most appropriate way of securing optimal spectrum use – without such charges inefficient decisions on the use of spectrum by DTT operators are likely.
- The AIP methodology is a well-established and recognised way of ensuring that spectrum is exploited to the benefit of consumers and thus is apt to achieve Ofcom's objectives mandated by Community law when managing radio spectrum.
- It is of paramount importance that DTT operators, as part of their replanning of DTT spectrum associated with the transfer of 700MHz to mobile use, are aware of and take account of the likely level of future spectrum fees (even if for technical reasons they are not currently being applied), in order that Ofcom can secure the efficient use of the radio spectrum.
- The indicative AIP levels suggested by Ofcom for DTT are the best available current estimate of the future costs that DTT operators need to take into account in planning their long term use of spectrum.
- However the modelling of the alternative use of 700MHz, whilst it is fit for the purpose of emphatically determining that it is mobile rather than DTT which has the higher value in use, is not (yet) sufficiently robust or reliable to establish any absolute value in use of mobile, since it appears to considerably overstate such value.
- We are content with Ofcom's proposal to implement in a phased manner its planned absolute increase in the level of spectrum fees for DTT, providing that a similar approach is applied in other sectors such as mobile with respect to similar per MHz absolute increases.

The principle of AIP charging where spectrum scarcity exists applies equally to different use classes and users

Where there is a potential choice of spectrum use between different activities, Ofcom's duties to secure optimal use of the radio spectrum mean that equity in the approach to charging for spectrum between mobile and DTT users can both assist the determination of the optimally efficient allocation between competing uses and also prevent inefficient spectrum use by the particular users within a use class.

Spectrum fees are obviously just one component of the cost of productive use of the spectrum, but if differential spectrum charging arrangements exist between alternative users of spectrum then this will distort the underlying relative cost of use between alternative users and hence tend to drive inefficient spectrum allocation and use. This concept clearly underpins Ofcom's preferred charging method in circumstances of spectrum scarcity, AIP:

> *"The principle behind AIP is that the use of spectrum for any particular purpose imposes an opportunity cost on society. This cost is the value of the alternative uses of that spectrum that are denied access as a result. If users pay a charge which reflects opportunity cost, they have an incentive to use the spectrum they hold in the most efficient way or vacate it for a more valuable use.*[1]"

It follows also that if some users were to pay a charge that is above opportunity cost, whilst other users pay no more than opportunity cost, or less than that, then similar considerations will apply. Spectrum charging arrangements can only provide the consumer benefit available from the optimal spectrum allocation where the proverbial level playing field exists for spectrum charging.

Principles of regulatory consistency, technology neutrality and non-discrimination (which Ofcom must seek to promote as a matter of law) are therefore highly germane in this case to the economically efficient outcome that is described above. In simple terms, the application of these principles means that, where spectrum is considered to be a scarce resource and critical to the operation of downstream services, a common methodology to the setting of spectrum usage charges should be adopted. Accordingly, that methodology should not therefore vary according to the frequency band, the identity of the user or the use to which the spectrum is put by the user of the spectrum given that the methodology is, as Ofcom rightly recognises, first and foremost designed to ensure that a scarce resource is being exploited by the user that values it most in the interests of end users.

In endorsing the AIP methodology for the setting of charges held by current holders of spectrum in the 700MHz band, Ofcom has clearly established that this methodology is compatible with its central obligation to secure 'the optimal use of spectrum,' As Ofcom notes at paragraphs 1.4 and 2.2 of its consultation document, that obligation stems

[1] Consultation at 1.7

from S. 3(2)(a) of the Wireless Telegraphy Act which gives effect to Article 13 of the Authorisation Directive. Once that core premise is accepted, there is no reason why Ofcom should depart from an established methodology that plainly achieves its objectives when managing radio spectrum used to operate a different technology such as mobile. Were it to do so, Ofcom must first be satisfied and demonstrate to industry stakeholders a credible justification for the adoption of an alternative methodology and that such an alternative methodology is equally apt to attain Ofcom's statutory objectives.

AIP for DTT: Efficient re-planning requires that indicative DTT spectrum fees are known now even if their introduction is phased

There is clearly a difficulty in that it is not possible to licence the same spectrum simultaneously for national DTT broadcasting and for mobile use (except that there is a potential non-national DTT use for local uses in the interleaved whitespace spectrum that arises from the present MFN DTT broadcasting approach). Thus Ofcom needs to make a long-term allocation decision for particular spectrum between such uses as DTT and mobile, and clearly intends to do so in the case of 700MHz.

We note that Analysys Mason has concluded that there is evidence of excess demand for spectrum currently used for national DTT[2]. But this cannot be taken in isolation – if the excess demand for spectrum exists merely as a result of the fact that that the spectrum inside the DTT "walled garden" attracts no licencing fee, then the imposition of a nominal spectrum fee may serve to reduce the demand for DTT spectrum so that it entirely matches the current supply. However the more relevant issue that charging can address is whether the "boundary wall of the garden" e.g. between DTT and mobile is in the right place. The methodology of AIP would suggest that this can only be properly established where the "ground rent" is set to an equivalent level either side of the wall.

This concern is increased by the very different directions of the consumer demand for DTT and mobile broadband respectively – the growth of mobile broadband is widely forecast. The significantly rising demand for mobile data traffic underpins the logic of considering whether the "boundary wall" should be moved.

This underlying demand growth underlines the importance of incentivising spectrally more efficient technologies of LTE and LTE-A for mobile, and of MPEG-4, DVB-T2 and SFN for DTT. These technologies enable both mobile and DTT services to convey more bits per Hz of spectrum used. While mobile spectral efficiencies are already being actively pursued by mobile operators – there is a role for DTT spectrum charging to incentivise more efficient use by DTT operators.

We would agree with Ofcom therefore that the most important current issue in relation to the 500 – 900MHz radio spectrum now that the 800MHz auction is over has to be

[2] Paragraph 1.12 of the consultation

identifying the most appropriate future use for 700MHz (in accordance with the RSPP and WRC-12[3]). We support Ofcom's outline aim in the UHF strategy statement to:

> *"secure the dual objectives of providing more low frequency spectrum for mobile broadband whilst also securing the ongoing delivery of the benefits provided by DTT. Specifically we stated that we will support an international process to seek harmonised release of the 700 MHz band for mobile broadband. At the same time, we would seek to ensure that the DTT platform can access the 600 MHz band, in the event that the 700 MHz band is made available for use by mobile broadband services."*[4]

There is an obvious difference in the use of spectrum for broadcast and for mobile in that the demand for mobile capacity comes from the traffic usage of the mobile *customer*, whilst the demand for the more passive broadcast capacity comes from the interrelationship between the broadcast *providers,* i.e. the multiplex operator and the TV channel owner. Incremental broadcast capacity demand may at the margin, be for a time shifted minority interest channel that might be accessed by the consumer in another way, e.g. from a customer PVR, or by internet TV (live or catch-up) etc. whilst the incremental mobile traffic demand will be from an active mobile customer.

We appreciate the technological changes that DTT broadcasters will need to implement[5] if as Vodafone expects, Ofcom confirms the consumer benefit of DTT vacating the 700MHz band and broadcasters are required to both re-plan and migrate onto 600MHz. This may make the early imposition of spectrum fees for DTT during this process of no practical advantage in pursuing the optimal use of spectrum. However it is vital that the knowledge of the prospective introduction of DTT AIP spectrum fees exists: it is necessary to enable the DTT operators to adjust their use of spectrum to the world where spectrum fees are being levied. This can be accommodated by an indication of the future charge rather than the imposition of an actual charge and the notional funds saved by the operators can then be applied by them to the replanning and migration process. There is no reason why in the long term when properly calculated the spectrum charge for DTT and for mobile in adjacent bands should be significantly different. We return to the level of such charging below.

We therefore consider that whilst the immediate imposition of spectrum fees to cover the cost of their management is correct if not in fact some time overdue, we can also support Ofcom's decision not to introduce spectrum fees above that level in the same timeframe.

We believe however that spectrum fees above the purely administrative level should be imposed on DTT immediately after any spectrum rearrangement is complete, and thus do not consider that it is appropriate at this stage for Ofcom to specify a precise date for when spectrum fees above the administrative level should be imposed, except

[3] Paragraph 4.20 of the consultation
[4] Paragraph 4.21 of the consultation
[5] Replanning and either reducing the number of broadcast channels and/or migrating customers to the spectrally more efficient technologies of MPEG-4 and DVB-T2

perhaps as a backstop control measure. The imposition of such spectrum fees for DTT should follow the logic and timing of the 700MHz decision:

- If the decision is that 700MHz is to be cleared and released to mobile, and this process is to commence in the near future, then the imposition of spectrum fees for the DTT spectrum should follow directly on the completion of the release process. An indication of the likely level of such fees (as far as is possible) is necessary to the DTT broadcasters so they can plan their optimal usage of the spectrum in that light.
- In the unlikely alternative event that Ofcom were to conclude that DTT occupancy of 700MHz were to continue, either in the short term, or indefinitely then clearly there would be no barriers to the immediate imposition of AIP based spectrum fees for DTT.

We note Ofcom's conclusion on a phasing in of the increase of spectrum charges for DTT summarised in paragraph 1.23:

> *"When applying AIP charges to other bands of spectrum, we have usually phased in payments over a number of years. This is because the introduction of fees of significant levels over a short period of time can lead to inefficient decisions about inputs and outputs, and therefore a sub-optimal use of spectrum. Consequently, our working hypothesis is that we would adopt a phased approach to the imposition of AIP for spectrum used by national DTT multiplexes."*

To the extent that this is a valid approach then it needs to be applied on a consistent basis. It would apply equally to increases in the absolute level of spectrum fees per MHz in any prospective change to such fees charged to mobile users for the 900/1800MHz bands.[6]

DAB and local TV spectrum fees

We have no views on the level of charging of spectrum fees for DAB radio, but some concern that if in future more effective uses in terms of dynamic spectrum access develop for DTT interleaved whitespace spectrum, as has been suggested by Ed Richards[7] then the absence of any spectrum charge for local TV above those of spectrum management may need revision, particularly if the volume of the available interleaved spectrum changes as a result of the exit of DTT from 700MHz.

[6] Vodafone notes a phased approach was also adopted by the RA when AIP fees were increased significantly in 1999: *"Where there are large increases, it is planned to phase these in over a number of years, so that business plans are not disrupted and users can mitigate the effects, e.g. by adapting their use of spectrum…. A common approach is being taken to calculate fees based on the use of standard building blocks (e.g. the Standard tariff units or link reference fees) for calculating the value of spectrum as a raw material in each band. It is also intended to continue this approach for Regulations in later years."* (Regulatory Impact Assessment - Proposals for Spectrum Pricing: Implementing the Second Stage May 1999)

[7] http://media.ofcom.org.uk/2012/03/07/speech-for-dynamic-spectrum-access-forum-brussels/

The proposed level of fees: per multiplex or per MHz?

We agree therefore with the logic of Ofcom's attempt to indicate potential DTT spectrum fee charges, but believe that there are issues with what Ofcom has published in this consultation.

In the first place, the way that Ofcom's indicative calculations are presented is not quite correct. Ofcom quotes the charges on a per multiplex basis – it would be preferable however to express them on a national per MHz basis, as one of the possible technological developments discussed by Ofcom, the use of SFNs rather than MFNs, would involve the reduction of the spectrum used per affected multiplex, and in order to send the correct pricing signals the charge should thus be based on the actual bandwidth of spectrum that is required for a multiplex, rather than a constant charge per multiplex.

We understand that Ofcom's first suggested charge, that where 700MHz has transferred to mobile use and 600MHz to DTT would involve up to 216MHz being used by DTT[8] to provide 6 multiplexes, at an indicated spectrum fee of £10m per multiplex in 2020 prices. This would thus be £10m per 36MHz or £0.278m per MHz. Adjusting this to current prices suggests a current cost of around £0.24m per MHz. By way of comparison the current mobile spectrum fee for 900MHz is £142,560 per 2*200KHz channel, or £0.356m per MHz.

The alternative Ofcom charge of £40m per multiplex considers a situation where 700MHz has been harmonised for mobile, but is continuing to be used for DTT. It would appear here that Ofcom is assuming that DTT is continuing to use 256MHz in total, as at present[9] and we assume that 6 multiplexes are continuing to operate. In this case each multiplex is occupying 42.7MHz, and thus the 2020 AIP charge would apparently represent £0.937m per MHz or about £0.800m per MHz in current cost terms.

The proposed level of fees: the calculation methodology for DTT can only be finalised after the steps which will be taken to vacate 700MHz are known

Clearly as Ofcom states, its calculations are very provisional and approximate. There is little point at this stage in engaging in detailed arguments on them in relation to the outputs.

We do however consider that there is an issue with Ofcom's indicative application of the Analysys Mason calculations. As it makes clear, the Analysys Mason report is constructed from a current point of view, of how in the context of the present holdings of DTT spectrum and in the way they are currently used, would operators respond to a

[8] 80 MHz of channels 21-30, 56MHz of channels 31-37, and 80 MHz of channels 39-48, as per A6.2

[9] 80MHz of channels 21-30, 80MHz of channels 39-48, and 96MHz of channels 49-60

loss of spectrum. This is clearly an entirely appropriate approach to use to derive a current spectrum charge. But for good reasons discussed above, Ofcom has moved on in its thinking and largely discarded the idea of a current spectrum charge for DTT in the expectation that there will be a reallocation of 700MHz spectrum from DTT to mobile. In reality therefore the spectrum charge needs to be set from a point of view of after this exercise is complete, rather than before.

Some of the spectrum efficiency improvements that the Analysys Mason report is suggesting that the DTT operators would undertake on a hypothetical basis to enable a current spectrum opportunity cost calculation to be made are very likely exactly those that in practice the operators will undertake on a real basis[10] to accommodate the migration from 700MHz and to carry out the associated spectrum replanning to compensate for the loss of 40MHz in the reduction from the current 256MHz to the prospective 216MHz. We note from figures 4.1 and 4.2 of Ofcom's consultation that very significant spectral efficiency improvements are possible, of several hundred percent. But at the current time, it is not clear which improvements will be necessary to be adopted, over what time frame, how extensively, and how they will be used[11].

But if, for example, more than one of the multiplexes are (by 2018 or whenever the replanning is complete) operating on DVB-T2 and MPEG-4 and some of the spectrum efficiency improvements are thus already in place, and the market trends that Analysys Mason notes have continued e.g. the rise of both video on demand catch-up TV and real time TV services delivered on broadband, it is clear that there will be a very different point of view at that point on the volume of spectrum that is necessary for DTT, from any calculation that can be made today:

- How will the level of demand for broadcast spectrum vary when spectrum fees are levied?
- To what extent does the imposition of a spectrum charge in providing an opportunity cost assist with the optimal determination of SD/HD broadcast alternatives?
- How many multiplexes are needed to accommodate the level of demand, and how much spectrum is each multiplex using?
- In this position, what is the incremental cost of implementing or extending further efficiency improvements to enable an opportunity cost calculation to be made for the purposes of AIP?
- If there is no excess demand when 216MHz is being used together with the implemented spectrum efficiency improvements, in order to continue the optimal use of the radio spectrum overall, how much spectrum is still needed to be reserved for DTT in order for the DTT and mobile spectrum opportunity costs to be brought approximately into equilibrium? Is 216MHz the correct amount of spectrum to reserve for DTT, or should it be less?

[10] At both the transmitter and the CPE end

[11] For example to increase the number of slots under SD or increase the bit rate per slot with HD

We would expect that many of these questions will be addressed by Ofcom and by the DTT operators during the course of the 700MHz replanning exercise, so there is no point anticipating all the answers at present.

At his speech to the DTG annual conference on 2nd May 2013, Ed Vaizey drew attention to three alternative DTT scenarios laid out by the Future of Innovation in Technology Taskforce for DTT:

> *"In the first scenario, the digital terrestrial television offering is limited due to other spectrum requirements, with other TV platforms providing much greater choice. Only PSB and local content would be available to all via DTT, but for enhanced viewing other platforms would have to be used.*
>
> *In scenario 2 – digital terrestrial television continues to develop alongside cable and satellite platforms to provide an expanded range of services. DTT would provide more free-to-view services, all in HD, and a limited range of pay TV services. Hybrid enhancements would be delivered by greater availability of superfast broadband.*
>
> *The third scenario sees DTT continue in the same vein as present with minimal change. The 700 MHz band would be cleared with a migration to 600 MHz for DTT services. More multiplexes migrate to DVB-T2. A minimal PSB offering of SD services retained for those with legacy DVB-T receivers. This scenario avoids the need for a migration from legacy equipment (though not new aerials) but has consequences for longer-term spectrum release."*

Clearly scenario 2 would involve very much more spectrum being used by DTT than option 1. Mr Vaizey concluded that from the Government's point of view one of the things to emerge from the debate should be " *for those models to maximise spectrum efficiency with the right structures to incentivise efficient use*". There is no reason to believe on this basis that the spectrum charge for mobile and for DTT in adjacent bands should be very different.

It is obvious to Vodafone that any conclusion regarding the volume of spectrum that should be used by DTT in the long-run should be made in circumstances where the spectrum being used by DTT recognises the opportunity cost of such use. If as a result less than 216MHz is required, then the planning of channels 21 - 48 should ensure that the spectrum below 700MHz that is not used by DTT is in a coherent block from channel 48 downwards towards channel 39.

The proposed level of fees: calculation methodology for mobile in 700MHz

Ofcom's second AIP option relies in part on the same calculation of DTT own use but the increase from £10m to £40m per multiplex is underpinned by an alternative use

opportunity cost calculation for 700MHz for mobile use, of £1.3m per MHz[12], or £106.4m for the whole 80MHz, which when spread across all 6 multiplexes is equivalent to £17.7m per multiplex per annum. (Ofcom then restates this calculation from Analysys Mason's present view in 2014 to the equivalent on a forward looking view in 2020 of around £32m per annum since 2020 is assumed to be the first opportunity to use the 700MHz for mobile services.)

We very much welcome and support the view that the value of the 700MHz spectrum is significantly much greater in mobile use rather than DTT use. Analysys Mason in figure 1.9 shows in effect a relative value ratio per MHz of 3.8:1. We also agree with Ofcom's use of an opportunity cost/network build approach to identify the alternative values in use of two potentially competing uses, and hence to secure the optimal use of spectrum. It follows from this that if Ofcom is using this method to both determine the best use of the spectrum and to calculate a spectrum fee charge for DTT, then it must establish why it would be appropriate to adopt a different methodology for charges relating to any spectrum used by mobile operators. To adopt a different approach in the absence of a compelling justification would be inequitable and as such place Ofcom in clear breach of its obligations to ensure that any regulation operates in a consistent and non-discriminatory way.

The model quite reasonably attempts to estimate the mobile network operator cost that could be avoided by the possession of 700MHz spectrum, in that the additional spectrum allows an operator to increase the traffic throughput per site, and thus allows the avoidance or delay in the construction of additional cell sites otherwise necessitated by the continued increase in mobile traffic. This applies obviously only where traffic levels are sufficiently high per unit of area (when multiplied by the area covered by the cell site) that they exceed the cell site's peak traffic carrying capacity. Where in a given year and location the traffic demanded at the cell site is less than its existing capacity, clearly any additional spectrum has no impact on network build costs.

Given the asymmetry of geographical distribution of traffic and the rise in traffic over time, there are obviously diminishing NPV returns obtained from each additional unit of spectrum since fewer additional sites are avoided by each further increment. We note for example that the model calculates a significantly lower average value per MHz for 2*15MHz of 700MHz spectrum, £1.18m vs. £1.58m for 2*10MHz. One particular modelling feature that we support is the common conclusion that both 700MHz and 900MHz will only add capacity to the mobile operators' 4G networks, given that a 4G coverage network will have been constructed by all mobile operators on either 800MHz or 1800MHz well before either of these bands can be used for 4G.

However whilst we have been given a copy of the model, our access to it has been limited in that all cells are protected. As a result whilst we can observe how the model is functioning in the base case scenario, for anything other than the base case we can see only the outputs of the limited range of other sensitivities that Analysys Mason has

[12] In the base case – Analysys Mason's sensitivity analysis shows a considerable range of outputs

considered – it is impossible to change any value of any cell in the model. Given the limitations of our access we cannot do anything other than conduct a brief outline review.

It is noteworthy that even the limited scenario sensitivities that Analysys Mason provides give a very broad range of possible outputs in terms of opportunity cost per MHz, as can be seen from the snipped image below.

Annualised value per MHz of 2x10	Annualised value per MHz of 2x5	Annualised value per MHz of 2x15	
1.58	2.21	1.18	Base case
1.31	1.71	1.02	Ofcom high usage
1.06	1.43	0.81	Ofcom mid usage
0.81	1.14	0.61	Ofcom low usage
2.35	3.15	1.81	Low active offloading
1.16	1.69	0.85	High active offloading
1.70	2.35	1.29	Early 700MHz launch
1.02	1.54	0.73	Late 700MHz launch
2.29	3.11	1.76	No HetNet improvement
1.84	2.55	1.56	Low HetNet improvement
1.34	1.89	1.00	Mid WACC
1.15	1.63	0.86	High WACC
1.50	2.12	1.07	High starting sites
1.69	2.33	1.28	low starting sites
2.77	3.71	1.24	Low LTE efficiency
1.55	2.20	1.16	Switched 800/900 spectrum
1.57	2.22	1.17	High 2.6GHz spectrum
0.75	1.02	0.57	High low frequency spectrum
1.75	2.49	1.31	Ofcom MLRIC asset costs

All of these sensitivities are without exception higher than Analysys Mason's calculation of the value in use for DTT. We can conclude from our very limited review that the model is sufficiently capable of discharging its primary purpose, i.e. to identify whether mobile or DTT has a greater value in use for 700MHz. It is quite clear that it is mobile that has the greater value. This serves to confirm our belief that Ofcom in its upcoming review will be able to determine from the model and from other evidence that 700MHz should be vacated by DTT and the use transferred to mobile.

However it is equally quite obvious from our review that the model is not sufficiently accurate or robust to reliably identify the absolute value of the spectrum in mobile use for mobile spectrum fee setting (nor clearly is it intended to be by Analysys Mason). The calculated output cost avoided is significantly too high even in the base case. We are sure however that any improvements to the model would not bring the value in use of mobile below that of DTT, so it in its present form is perfectly fit for the current principal purpose of identifying the more appropriate use for 700MHz.

Since industry stakeholders were not given access to the model, it follows that Ofcom has expressly sought not to obtain views upon the model that might refine or change the outputs from the mobile model. Vodafone is accordingly not in a position to comment on the construction of the model or the outputs generated by that model. In

failing to provide full access to the model, Ofcom has deprived itself of the opportunity to satisfy itself that the model is robust and fit for the purpose of setting spectrum fees. Given that there are clear risks to consumers from an erroneous spectrum charge (where for instance the level of the spectrum charge is unduly high resulting in a user surrendering the spectrum), as we explain in further detail below, Ofcom should ensure that it addresses this concern in the event that it were to attempt to use the outputs from the model to set spectrum fees.

But since the model cannot currently reliably identify the absolute value of the 700MHz spectrum for mobile use, by implication it cannot therefore be used in the DTT context to be a reliable indicator of the higher DTT spectrum fee that would need to be set in the unlikely event that Ofcom were to conclude that 700MHz should not be used for mobile in the UK. This is presently calculated at £32m per multiplex – the implication of our conclusion that the base case model output is too high is that £32m is also too high a level. This deficiency however is not a particular problem at this stage, given that it is extremely unlikely that this premium will need to be levied. Were Ofcom to make a conclusion with respect to 700MHz that brings its higher DTT spectrum charge scenario into play, i.e. that 700MHz has been approved internationally for mobile use, but that in the UK it will be reserved for DTT, then the deficiencies of model will need to be addressed before deriving a DTT AIP.

In the alternative, a more useful immediate indicator of the value in mobile use of 700MHz spectrum, potentially suitable for DTT spectrum fee setting under this scenario, may be derived from whatever analysis Ofcom adopts to estimate the value of 900MHz, particularly given that the long term use of 700MHz and 900MHz are likely to be very similar. It is likely that one of the methods that Ofcom will employ to do this will be a cost model similar to that built by Analysys Mason. The construction of the present model, and Ofcom's suggestion in this consultation as to how it should be used, is a useful practical demonstration that this method can be used, and further that Ofcom believes that it can be used, to derive the opportunity cost of mobile spectrum.

Vodafone response to Ofcom's questions

Whilst the bulk of our response to the consultation is contained in the sections above, we respond below in outline to each of the specific questions. These answers thus need to be taken in conjunction with the rest of this document.

Question 1: Do you agree that the principle of applying AIP remains relevant to spectrum used for broadcasting?

Vodafone response – yes. AIP is Ofcom's tried and tested approach where it has identified spectrum scarcity. We no reason why Ofcom should depart from this charging approach for DTT spectrum or any other spectrum where there is scarcity.

Question 2: Do you agree with our revised proposals to delay the introduction of AIP based on opportunity cost for national DTT multiplex operators until we have materially progressed our proposals for the future use of the UHF spectrum?

Vodafone response – yes. Given the very strong likelihood that the future use of 700MHz will switch from DTT to mobile and the consequences that this decision will bring on DTT operators in terms of replanning, progressing to spectrally more efficient technologies etc., during this transition period, whilst it is important that DTT operators are made available of the likely level of spectrum charges and factor this into their planning in pursuit of efficient spectrum use, the actual charge of an AIP-based spectrum fee adds little to the determination of the optimal use of the spectrum. The funds thus notionally saved would be better applied by the DTT operators in the replanning process.

Question 3: Do you agree with our proposals to apply a fee for spectrum used for national DTT, in the meantime, based on the cost of administration instead?

Vodafone response – yes. Even if this fee proves to be a nominal one, there is no reason why the basic costs of spectrum management should not be recovered from the users of the spectrum. We consider that the imposition of such a charge on DTT operators is overdue.

Question 4: Do you agree that charges based on the costs of managing the spectrum should be applied to DAB radio and to local TV broadcasting?

Vodafone response – yes. For the moment this is the correct decision – however given the fact that rearrangements to the DTT spectrum arising from the transfer of use of 700MHz may impact the available supply of the interleaved spectrum used for local TV and also the fact that investigation of alternative use of this white space spectrum is very much developing, it may be that the demand for interleaved spectrum will change. We suggest that when Ofcom sets an AIP based charge for DTT, it also re-evaluates the supply and demand position of the interleaved spectrum.

Question 5: Do you agree that when full AIP is applied for spectrum used for national DTT broadcasting (once we have materially progressed our proposals for future use of the UHF spectrum) it should be applied gradually, rising over five years.

Vodafone response. There are two questions here. To the first one, should AIP be applied to the national DTT broadcasting spectrum once the transition from 700MHz is complete, our answer is emphatically yes. We agree with Ofcom that an opportunity cost based service charge is the most appropriate one to be used here, and elsewhere, to secure the optimal use of the radio spectrum. Clearly the charge will have to be calculated on the basis of the conditions that exist *after* the transition has been complete – it is unlikely that any charge calculated on the basis of the current position can properly anticipate the necessary changes in DTT spectrum holding, spectral efficiency, spectrum demand etc. that will occur as a result of the transition.

To the second question, the increase that Ofcom is currently suggesting as being necessary to be implemented on a glidepath is an absolute increase of approximately £0.25m per MHz. We have no objection to this approach to such an absolute increase in spectrum fees, provided it is applied consistently elsewhere. To adopt a different approach so as to vary such treatment according to the technology operated by the holder of the spectrum gives rise to an obvious unfairness and is plainly in contravention of the principles of non-discrimination and technology neutrality that govern the way in which Ofcom discharges its regulatory functions.

Vodafone Limited
May 2013