BT Response to the Consultation Document on the Spectrum Framework Review: Implementation Plan

Executive summary

1. BT was very pleased to receive Ofcom’s Consultation Document on the Spectrum Framework Review: Implementation Plan. We view this document as a turning point between the extensive preparatory work for the UK’s liberalised spectrum environment and the creation of a working and, hopefully, successful spectrum market.

2. The important areas of broadband wireless access and convergence stimulate BT’s interests in this implementation plan. We are generally supportive of the proposals that Ofcom has made, as we believe they provide opportunities in both these areas.

3. There are nevertheless some issues upon which we wish to comment. These we have addressed in our answers to the questions asked in the CD (see Annex 1) and, where appropriate, within the main text below.

4. We welcome Ofcom’s intentions to award spectrum as soon as practical as we see this as being the key to alleviating some of the problems associated with spectrum scarcity as well as bringing in to use spectrum that may otherwise remain unused.

5. The technologies and systems that may be best suited to broadband may be quite different from those optimised for, say, the cellular mobile applications. If broadband wireless access and other applications are to secure spectrum via the “spectrum market” it is essential that any spectrum awarded by Ofcom into this market is inherently made available on a technology and applications neutral basis (and is made tradable) from the outset.

6. Despite the welcome linkages that Ofcom makes between this current initiative and its broadband policy, BT has concerns that many of the spectrum bands likely to be auctioned are small (in the broadband context). On their own, these may not represent sufficient opportunities for broadband capabilities with the potential to follow the expected trends in broadband user numbers and bandwidth.

7. BT believes that the awards mechanism should be transparent, simple and treat all bidders equally. This would imply that an auction mechanism would be more suitable than the other options such as comparative selection and first come first served.

8. In our view, in a number of key areas, Ofcom needs now to deliver greater clarity over such matters as what will or will not actually be allowed in particular bands; how spectrum rights and obligations will be defined; how interference management will be handled; whether or not full technology neutrality (within sensible technical constraints to protect other spectrum users) will apply; to what extent full liberalisation will be allowed in current and new licences; and if, how and for how long special measures will be in place to protect the 3G services.
9. BT does not believe that any restrictions are necessary to prevent the use of spectrum for mobile services other than 3G, unless such restrictions are necessary for essential technical reasons.

10. While we understand Ofcom’s suggestion to have a practical working definition of “3G Services” in order to aid regulatory certainty, we have expressed some concerns with the definition proposed. In practice, given that Ofcom is apparently favouring removing any restrictions by, say, 2007 we are not convinced that the definition will have any very practical implications given the time it would take to acquire spectrum and deploy a network.

11. In our view the likelihood is that the 2G & 3G spectrum will be required to offer current services for some considerable time to come. To that extent it does not seem to us to be of a high priority to resolve the issues raised within §9 with any urgency.

12. Insofar as the rollout obligations issue relates to regulatory clarity and certainty, it can do no harm for Ofcom to be as clear as possible with regard to its approach in these matters. The other main principle which needs to be upheld is that the sanctions should be appropriate for the market conditions pertaining during the lead up to the compliance date. The draft guidance is a reasonable start but clearly does not stand up as a standalone document in its current form.
### Contents

Executive summary ........................................................................................................................................... 1

Contents.......................................................................................................................................................... 3

1 Introduction .................................................................................................................................................. 4

2 Drivers behind BT’s positions in this response......................................................................................... 4

3 Policy issues ................................................................................................................................................ 5
   3.1 General comments ................................................................................................................................. 5
   3.2 Awards Programme ................................................................................................................................. 6
   3.3 Awards Mechanism ................................................................................................................................. 6

4 Regulatory clarity and certainty .................................................................................................................. 7

Conclusions ..................................................................................................................................................... 7

Annex 1: Answers to the questions within the Consultation Document .................................................. 9

A1.1 Policy on release of spectrum .............................................................................................................. 9
A1.2 Part of VHF Band III (174 - 230 MHz) ................................................................................................. 11
A1.3 Part of 410 - 425 MHz (410 - 415 MHz paired with 420 - 425 MHz) .................................................... 11
A1.4 470 - 854 MHz Broadcast Dividend .................................................................................................... 12
A1.5 872 - 876 MHz paired with 917 - 921 MHz .......................................................................................... 13
A1.6 L-Band (1452 - 1492 MHz) .................................................................................................................... 13
A1.7 1781.7 - 1785 MHz & 1876.7 - 1880 MHz (GSM/DECT Guard Bands) ................................................... 13
A1.8 1790 - 1798 MHz .................................................................................................................................. 15
A1.9 2010 – 2025 MHz .................................................................................................................................. 15
A1.10 2290 - 2302 MHz ................................................................................................................................. 16
A1.11 2500 – 2690 MHz .................................................................................................................................. 16
A1.12 3.6 – 4.2 MHz (3695 – 3875 MHz paired with 4015 – 4195 MHz) ......................................................... 17
A1.14 28 GHz (28.0525 to 29.4525 GHz) ...................................................................................................... 18
A1.15 32GHz Band (31.8 – 33.1GHz) ............................................................................................................. 18
A1.16 40 GHz (40.5 – 43.5GHz) ..................................................................................................................... 19
A1.17 Removing restrictions on the use of spectrum for mobile services ................................................... 19
A1.18 Trading and liberalization in existing 2G and 3G bands ................................................................. 21
A1.19 3G Operators roll out obligations – draft guidance ............................................................................. 22
BT Response to the Consultation Document on the Spectrum Framework Review: Implementation Plan

1 Introduction

BT was very pleased to receive Ofcom’s Consultation Document (the CD) on the Spectrum Framework Review: Implementation Plan. Indeed we view this pivotal document as the turning point between the extensive preparatory work for the UK’s liberalised spectrum environment, and the creation of working and, hopefully, successful spectrum market. We believe that the plans and proposals to award a range of new licences should trigger some interesting developments in wireless services.

We have carefully considered the content and questions within the CD and our response is given below. In §2 we provide some indicators of the drivers behind the positions we have taken in this response. In §3 we address a number of policy related points, and in §4 we highlight a now pressing need for regulatory clarity and certainty as we enter the era of liberalisation and trading in spectrum and prepare for the awards proposed within the CD.

BT has provided its answers to the many specific questions raised in the CD in Annex 1.

A summary of our overall conclusions is provided at the end of the main text.

2 Drivers behind BT’s positions in this response

BT is driven relentlessly by its customers’ growing requirements for broadband and ICT. The market increasingly indicates requirements for quality Broadband Wireless Access (BWA), and there are many wireless developments worldwide seeking to provide solutions to extend the delivery of a full broadband experience beyond its wireline origins.

Unlike the case of the mobile market, for which specific arrangements for licensed spectrum (typically taking about 10 years to put in place) have been made over the years, the broadband market has had few specific licensed spectrum provisions (5.8GHz being perhaps an exception in the UK). This is in no small way due to the sheer speed at which broadband has developed and the now very rapid and enthusiastic market take up with ~5m DSL connections (Spring 2005), most of which serve a whole family, or several people in a small business, or multiple devices.

Broadband has made incredible use of the 2.4GHz spectrum available for WLAN applications, as demonstrated by the widespread use of WLAN technologies and standards in privately run networks and commercially operated hotspots. It will also surge into the 5GHz bands once global technical and political acceptability of the radar-protecting DFS technology is established to the point where there is sufficient worldwide regulatory stability and certainty to create industry confidence.

1 Spectrum Framework Review: Implementation Plan, Ofcom, 13th January 2005
2 DFS – Dynamic Frequency Selection
However, broadband wireless will increasingly need to provide services with guaranteed QoS over wider areas, and this, in our view, is dependent on the allocation of suitable licensed spectrum. Without specific spectrum provisions made available through the international harmonisation process, broadband and other new wireless applications will need to secure frequencies via national spectrum awards and the spectrum market place. It is for this reason that BT has been, and remains, generally supportive of Ofcom’s strategic spectrum initiatives. We were pleased to note that Ofcom also fully recognises the important strategic connections between the Spectrum Framework Review and its Implementation Plan, and the development of the broadband environment (as demonstrated in many places within the CD). It is within Ofcom’s gift at this time to ensure that broadband is not being denied this fair opportunity.

The technologies and systems that may be best suited to broadband and other innovative wireless applications may be quite different from those optimised for, say, the cellular mobile applications. If broadband wireless access and other applications are to secure spectrum via the “spectrum market” then, for them to have a fair and reasonable chance of gaining access to spectrum, it is essential that any new spectrum released by Ofcom into this market is inherently available on a technology and applications neutral basis (and is made tradable) from the outset. It is for this reason that BT remains a strong proponent of technology neutrality, in its fullest sense. We were pleased to observe that Ofcom too continues to maintain this approach in this consultation.

Broadband is now increasingly delivering up to 2Mbit/s and beyond, and is constantly extending its capabilities. This requires bandwidth, and for BWA this means spectrum holdings of an appropriate size. We have some concerns that many of the spectrum bands likely to be auctioned are small (in this context) and on their own may not, without augmentation, represent sufficient opportunity for broadband capabilities with the potential to follow the expected trends in broadband user numbers and bandwidth.

If spectrum holdings are to be capable of augmentation via aggregation using spectrum trading and spectrum liberalisation, then it is important that licences for spectrum blocks that might become available on the market are truly flexible in the usage to which the can be put and the technology that can be used to achieve such usage. The early liberalisation (to the greatest extent possible) of existing licences will therefore be an important factor in achieving a fair opportunity for those applications that do not have existing spectrum and are unlikely to have any specific provision made. It was for this reason that BT was supportive of Ofcom’s intentions vis-à-vis existing licences as set out in §1.8-§1.12 of the recent Liberalisation Statement.

Our supportive positions on spectrum trading, liberalisation and technology neutrality underpin our comments below and our answers to the questions raised in the CD.

3 Policy issues

3.1 General comments

BT welcomes Ofcom’s policy proposals outlined in Section 4. We believe that a well-defined policy on the awards programme and the award mechanisms (e.g. auctions) will provide a welcome degree of certainty to the potential buyers of spectrum licences.

3 A Statement on Spectrum Liberalisation – Implementation in 2005, Ofcom, 26th January 2005
We also welcome Ofcom’s intentions to award spectrum as soon as practicable as we see this as being the key to alleviating some of the problems associated with spectrum scarcity as well as bringing in to use spectrum that may otherwise remain unused.

### 3.2 Awards Programme

BT believes that it is in the interests of all spectrum users to have a well defined awards programme which identifies with certainty which spectrum bands will be awarded and when. This information will be vital for users of spectrum to design their business plans around informed decisions. We would urge Ofcom to firm up plans in this regard, stabilising currently indicative dates and thereby providing a welcome degree of certainty to the industry.

We believe that the rate at which spectrum is awarded has wide-ranging implications:

- Firstly, if spectrum awards are made slowly and without sufficient flexibility of use, then competition will be promoted only in those downstream markets in which the awarded spectrum is an input. Hence there is a possibility that the level of competition in downstream markets will be dependent on the roll out plan of the spectrum awards.

- Secondly, some spectrum users may attempt to acquire ‘second best’ spectrum for an application, where there preferred spectrum is for a much later award, in order to gain some degree of certainty. This is likely to lead to inefficiencies.

- Finally, in section 4.8 Ofcom refers to ‘less powerful bidders’. It is not clear from the document what this term means. However, the power of the bidder must be related to the likely cost of the spectrum, which in turn would depend on a variety of factors including the “quality” and quantity of spectrum to be awarded and the number of bidders. Increasing the supply of spectrum by awarding more would seem to help to increase the likelihood of acquiring spectrum at a reasonable price and thus reducing the unwanted effects of overly powerful bidders.

We are therefore supportive of Ofcom’s intentions to award spectrum as soon as practicable, believing that this may alleviate some anomalies that may otherwise occur with a slower award programme.

### 3.3 Awards Mechanism

In discussing the programme of awards in §4.17, Ofcom make the point that setting up and running auctions is a resource intensive process, indeed we recognise that this can indeed be the case. Nevertheless, the point is also made at §4.11 that spectrum trading can be expected to ensure that spectrum is transferred to its highest value use, thus reducing the need for complex auctions. This will be particularly true where trading with liberalisation, or at least a degree of technology neutrality, is envisaged. There is a balance to be struck here over which Ofcom retains significant control: while spectrum that could be made available is not released into the market this can of itself, as has been noted elsewhere, have a distortionary effect on the market itself. We would therefore urge Ofcom to err on the side of simplicity of allocation method i.e. simply to release the spectrum for use in order that the market can work most effectively. Notwithstanding that we have sought, where we have a view, to indicate the priority we believe individual allocations should be given, in the event that Ofcom feels unable to adopt this latter approach.
BT therefore believes that the awards mechanism should be transparent, simple and treat all bidders equally. This would imply that an auction mechanism would be more suitable than the other options, such as comparative selection and first come first served. The “3G” auction mechanism appears to have been a suitable method for awarding spectrum licences in the past and we suggest that this type of mechanism could provide the basis of future awards. As reasoned above, we do support the idea that the award mechanism should be as simple as possible. We continue to believe that once spectrum has been made available through a market mechanism such as an auction, it should then be tradable. Insofar as this is the position adopted by Ofcom we note that there is less reason to adopt an overly complex auction mechanism since future trading will ensure that the spectrum does find its way to its most efficient use.

It would, in our view, be helpful to the industry if the awards programme also indicated the award mechanism and any restrictions that may be imposed on potential bidders or any likely objectives such as support for ‘new entrants’.

4 Regulatory clarity and certainty

As a point of general concern, and building on our comments in §3 above, we believe it is vital to move to regulatory clarity and certainty in the UK prior to the forthcoming spectrum auctions and awards.

Ofcom has clearly achieved a great deal in a short period of time, and is to be commended on its rapid progress. We are nearing the end of the essential consultative processes, as set out in figure 1 of the CD, which were necessary to bring us to the key milestone represented by this present consultation. Whilst consultation must clearly continue (and is welcomed by BT), we are hopeful that Ofcom will agree that this will now be at the level of technical detail, spectrum packaging and auction design.

In our view, in a number of key areas, Ofcom needs now to deliver greater clarity over such matters as what will or will not actually be allowed in particular bands; how spectrum rights and obligations will be defined; how interference management will be handled; whether or not full technology neutrality (within sensible technical constraints to protect other spectrum users) will apply; to what extent full liberalisation will be allowed in current and new licences; and if, how and for how long special measures will be in place to protect the 3G services. This list is not exhaustive, but these are some of the issues that should be resolved, in good time, prior to embarking on the award process.

Without such certainty and clarity it remains very difficult for existing and prospective players to explore potential markets; to devise innovative applications for the spectrum; to explore technologies and initiate dialogues with manufacturers; to build commercial propositions and business cases; to properly value the spectrum awards; to secure budgetary provisions for spectrum and hardware; to design customer support systems and to plan physical deployments.

Conclusions

BT views the Spectrum Framework Review: Implementation Plan CD as a turning point between the extensive preparatory work for the UK’s liberalised spectrum environment, and the creation of working and, hopefully, successful spectrum market.

The important areas of broadband wireless access and convergence stimulate BT’s interests in this implementation plan. We are generally supportive of the proposals that Ofcom has made, as
we believe they provide opportunities in both these areas. Where we have found a need to comment, the relevant points have been addressed in our answers to the questions asked in the CD (see Annex 1) and, where appropriate, within the main text above.

We have welcomed Ofcom’s intentions to award spectrum as soon as practicable. BT has agreed that the awards mechanism should be transparent, simple and treat all bidders equally. This implies that an auction mechanism would be more suitable than the other options such as comparative selection and first come first served.

We have indicated that if broadband wireless access and other applications are to secure spectrum via the “spectrum market” it is essential that any spectrum awarded by Ofcom into this market is inherently available on a technology and applications neutral basis (and is made tradable) from the outset.

We have suggested that, in a number of key areas, Ofcom needs now to deliver greater clarity over such matters as what will or will not actually be allowed in particular bands; how spectrum rights and obligations will be defined; how interference management will be handled; whether or not full technology neutrality (within sensible technical constraints to protect other spectrum users) will apply; to what extent full liberalisation will be allowed in current and new licences; and if, how and for how long special measures will be in place to protect the 3G services.

We do not see any advantage in artificially constraining the degrees of freedom available to prospective spectrum purchasers, as this would make it difficult to adapt to market actual conditions and hence derive maximum benefit from the spectrum. BT does not therefore believe that restrictions are necessary to prevent the use of spectrum for mobile services other than 3G, unless these are essential for purely technical reasons.

While we understand the background to Ofcom’s suggestion for a practical working definition of “3G Services”, we have expressed concerns with the definition proposed. We believe that it is difficult to arrive at a foolproof definition of such services, and have some concerns that the law of unintended consequences may impact. However, given that Ofcom is apparently favouring removing any restrictions by, say, 2007 we are not convinced that the definition will have any very practical implications given the time it would take to acquire spectrum and deploy a network.

In our view the likelihood is that the 2G & 3G spectrum will be required to offer current services for some considerable time to come. To that extent it does not seem to us to be of a high priority to resolve the issues raised within §9 with any urgency.

Insofar as the rollout obligations issue relates to regulatory clarity and certainty, we have concluded that it can do no harm for Ofcom to be as clear as possible with regard to its approach in these matters. The other main principle which needs to be upheld is that the sanctions should be appropriate for the market conditions pertaining during the lead up to the compliance date. The draft guidance is a reasonable start but clearly does not stand up as a standalone document in its current form.
Annex 1: Answers to the questions within the Consultation Document

BT’s comments in §3 and §4 of the main text of this response are deemed to be part of our answers to the Questions below.

A1.1 Policy on release of spectrum

Question 4.1 Do you see scope for using simpler auction formats in the future than used in the UK in the past?

BT believes that there are considerable merits to the auction methods used previously in the UK. The 3G auction process was transparent, relatively simple and well understood. We would therefore suggest adopting this style of auction, with simplifications as the basis for future awards.

In part the complexity of any auction will depend on its objectives. The 3G auctions had an objective of encouraging a new entrant, which resulted in additional complexity to protect new entrants from existing 2G bidders. As we noted earlier, in section 4.8 Ofcom use the term ‘weak bidder’ but it is not clear to us what this term means. However, if the auction does have additional objectives, such as the protection of certain types of bidder, they will complicate the auction. The need to protect any category of bidder most likely arises when the spectrum is scarce and demand is large. We would suggest, as explained above, that auctions should be simplified as far as possible, and that Ofcom make as much spectrum available as is practicable.

A standard auction process will reduce the resources required by Ofcom and the industry. However, we note that if regional licences are to be auctioned it may be necessary to allow combinatorial bidding, which necessarily increases the complexity of the auction.

We agree with the comments made in §4.5 of the CD regarding comparative selection and believe that it should not be used as it generally lacks transparency, which makes it susceptible to accusations of bias. Furthermore, this allocation method would be against Ofcom’s policy of letting the market decide, as by its very nature it is judgmental and requires regulatory intervention.

Question 4.2 Do you agree future auctioned licences be for a minimum fixed term with a rolling extension?

We note that in §4.13 of the CD Ofcom has not considered the option of making the licences valid indefinitely, only to be revoked under the most extreme conditions. Making the licence period indefinite would mean that all spectrum licences would be on the same terms rather than late-auctioned licences being in the minimum period and early-auctioned licences being in the rolling period. We believe that users in the rolling period of their licence would consider investment in infrastructure a risky option. We therefore have concerns that licences with a fixed term followed by a rolling period may result in users making decisions not based not on spectrum efficiency, but on the certainty attached to different blocks of spectrum, which may be at different stages of their licence term. A licence with a fixed term followed by a rolling extension could therefore create some anomalies in spectrum usage. Different fixed terms for different spectrum licences, as Ofcom suggest in §4.13 of the CD, may aggravate this situation.
We would suggest that a key requirement of licensing is to ensure that all licences are held on the same terms with the same certainty to allow users to undertake investment.

It is also not clear how tradable a licence would be in the rolling extension period, as it may not provide the certainty that a potential buyer would need to build infrastructure. This may lead to the user eventually returning spectrum to be re-auctioned.

Finally, we believe that if Ofcom find that an indefinite licence term is not a suitable option then a fixed term will provide certainty to a bidder’s business plans at the time of bidding. A rolling term extension with well-defined conditions would provide additional certainty to the industry when formulating business plans. In view of our comments made above it may be appropriate to synchronise all fixed terms – i.e. all fixed periods end at the same date.

**Question 4.3** If licences with minimum fixed terms followed by rolling terms are introduced, do you agree that AIP should be payable during the rolling term of licence?

We believe that market forces will encourage users to make the correct decisions. We therefore suggest that Ofcom avoid AIP and review the situation later. If there is evidence of market failure than AIP may be an appropriate remedy.

**Question 4.4** What should Ofcom do to ensure that bidders are well informed and well prepared to participate in an auction?

The proposals made by Ofcom will help to ensure that the bidders are well informed. As we have noted above the timetable for future awards is critical to an auction and we suggest that both firmed award dates and suggested award dates are included in the information supplied.

**Question 4.5** Do you agree these are relevant considerations which Ofcom take into account in devising its programme of spectrum awards?

Broadly speaking we agree that these are the relevant considerations to take in to account, but the weight that Ofcom attaches will be important in determining the overall effect. We would like to make a number of observations on several factors.

- **Market Interest** – Ofcom note that the auction award mechanism is best suited to situations where demand exceeds supply. It would be unfortunate if a potential spectrum user were unable to acquire spectrum due to lack bidders to fill an auction in his chosen frequency band. In these situations it may be appropriate to consider other award mechanisms.

- **Economic significance** – A potential buyer with a new application may not disclose the nature of the application. This would make it difficult for Ofcom to assess the true gains to end-users. Innovation is a significant benefit to customers that is difficult to assign a value to a priori.

- **Overseas activities** – If there are any harmonisation issues that may affect the use of the spectrum, then we agree that these should be considered. However, the UK regulatory environment is ahead of other EU countries, which could result in delays if the UK waits for other member states to catch up.
**Question 4.6** Do you believe that the proposed award programme is appropriate?

We understand that Ofcom may itself find a rolling award programme challenging, given the possible need to design and hold auctions. Nevertheless, we remain convinced that remaining stagnant spectrum should be released for use into the market as soon as is reasonably possible. And that given that it should not, under a spectrum trading regime, be necessary to design overly complex award mechanisms and auctions, this may be less of a problem than Ofcom appears to anticipate. The problem with a rolling programme spanning a number of years is, as is often the case, that of lack of regulatory certainty. If the programme is to be spread, we agree it would be sensible as Ofcom has suggested, to address the award of those brackets of spectrum in which there is significant interest, primarily because clearly the indications are that this spectrum will be most valued and likely to be efficiently and profitably used early, but also because this will provide some defence against a situation where stronger players may acquire the less desirable or less clearly defined bands as a hedge against failing to gain their more favoured options at a later stage.

We have tried in other sections of our response to indicate what we believe are the most pressing bands for allocations both based on interest but also on our knowledge of equipment availability.

**A1.2 Part of VHF Band III (174 - 230 MHz)**

**Question 5.1** Do you agree with these proposals for the award of Band III?

We refer Ofcom here to BT’s recent response to the consultation on Radio – Preparing for the Future. Within that response we provide our comments against several of the questions raised in that consultation.

We can generally support Ofcom’s proposals relating to this band. However, whilst sub-band 2 is not of immediate interest to BT, we do have interests in the further development of spectrum for T-DAB in sub-band 3. Our response to the earlier consultation is therefore deemed to provide our views in the context of this question.

**A1.3 Part of 410 - 425 MHz (410 - 415 MHz paired with 420 - 425 MHz)**

**Question 5.2** Do you agree Ofcom should award a national licence on a technology and service neutral basis by auction or is there another option for award that is more likely to meet users’ requirements?

**Question 5.3** Do you think that spectrum in the band should be allocated for emergency services and business radio use?

We take these two questions (5.2 and 5.3) together, as they are closely related. On the question of “emergency services” we assume that Ofcom is not referring here to “blue light” services, as these have separate access to spectrum. We therefore assume that Ofcom is referring to spectrum that could be used for civilian purposes during times of stress. The spectrum concerned is only 2 x 4MHz, and thus there is little scope for sub-dividing between emergency and business radio causes. We therefore further assume that Ofcom has on its mind applications that might use the spectrum for business radio (i.e. commercial) purposes under [BT Response to the Ofcom Consultation on Radio – preparing for the future. 7th March 2005](#)
normal conditions, but which would be pre-emptable for some kind of emergency use (by the same or different users) in times of difficulty.

In BT’s view it is likely that the two areas of application would best be within the same user environment because of the essential need for full familiarity with the radio environment, its rapid transition to the alternative use, operation, coverage, and performance etc. under the more stressed situations. BT sees no problems with such joint applications. Furthermore, because of the (very hopefully) rare need to drop into the alternative area of application, and the hence dominant use for normal commercial purposes, we see no real reason why this spectrum should not be awarded in a conventional way.

The other factor is the restriction on use brought about by the needs to maintain compatibility with various MoD installations, and this does limit the potential for a full national service. Provided the limitations are made very clear so that there are no misconceptions at the time of the award, we believe Ofcom has the options of an auction or any other types of award that might be more appropriate. We would suggest the Ofcom, via its consultancy study, determines the area of applications most beneficial to the UK, and hence whether the value of the spectrum is likely to warrant an auction. Despite the restrictions, and provided they are made known to parties interested in this spectrum, we believe that the award of this spectrum should be on the basis of a national licence.

As a final point, we believe that Ofcom should address the fragmentation of the band before the award of spectrum is undertaken. 2 x 4MHz of spectrum is not a significant spectrum holding if detectable economic benefit is to be achieved from it, and we believe the prospects of such benefit would be enhanced if the 4MHz block were contiguous.

A1.4 470 - 854 MHz Broadcast Dividend

**Question 5.4 Do you believe it is appropriate wait until after the RRC in 2006 before developing policy proposals?**

BT believes that it is probably sensible to wait until the results of RRC-06 are available before determining the detail of which specific frequency blocks will be surplus to the needs of present broadcasting services, once these are transferred to the digital terrestrial broadcasting platform, and the scope of any technical constraints that might be available.

However, to do nothing more until that time risks prolonging the current uncertainty and a protracted period of “planning blight”. We therefore believe that Ofcom should make an earlier statement re-confirming that any spectrum that does become available via this route will be recovered and re-awarded in a technology and application independent manner. Furthermore, it should be clear that all prospective users of this spectrum, including those who envisage new broadcasting applications of any kind, would have an opportunity to bid in such an auction.

The only constraints on the released spectrum should be those of a technical nature that are essential to the protection of the digital TV services.

There is evidence to be seen that such clarification of Ofcom’s eventual intentions is required in the moves being made by certain organisations to secure early CEPT, ITU-R and WRC-07 action to harmonize the freed-off spectrum and to allow it to be used for applications in the Mobile service. We do not believe it is too early for Ofcom to engage in a technical discussion of the
possibilities foreseen within the UK, albeit that the precise details could not be defined until after RRC-06. This would perhaps facilitate a spectrum award at the earliest possible occasion.

**A1.5 872 - 876 MHz paired with 917 - 921 MHz**

*Question 5.5* Do you agree Ofcom should award a UK licence on a technology and service neutral basis by auction?

Yes, BT can fully support Ofcom’s proposals in §5.43 to §5.50 for a single UK licence with technology and applications neutrality.

**A1.6 L-Band (1452 - 1492 MHz)**

*Question 5.6* Do you think Ofcom’s proposal is appropriate?

BT agrees with Ofcom’s proposals in relation to the 1452-1492MHz (L-band) spectrum package, as set out in §5.57 – 5.60 of the CD. Specifically, BT concurs with the proposal to demarcate the lower 12MHz of the band, and with the proposal to package this as a single licence with appropriate constraints in order to avoid interference with European satellite operators.

BT also supports the proposals to subdivide the remaining 28MHz. Such an approach will afford applications diversity and competition as well as enabling a coexistence of different application technologies (DMB, DVB-H) as future markets/solutions mature.

However it is important for Ofcom to be mindful of the technologies that could be deployed in this spectrum, and to award block sizes compatible with the channel widths that these might need. With this in mind, and given that many of the spectrum blocks identified in the Implementation Plan are fairly small, BT encourages Ofcom to keep the awards in this band sufficiently large so that they could support broadband services on a platform, technology and application independent basis. We believe that, realistically, no more than 2 licences could be created out of the 28MHz portion of the band.

Because of the significant interference range at these frequencies and the difficulties this would create for regional licences, we believe that national licences would be most appropriate.

BT recognises that the Ofcom agenda for spectrum award processes will be very stretched in the near-term and that a degree of prioritisation may have to be applied to the overall Implementation Plan. With this in mind, BT does not view the award of licences in this band as being high priority at this stage.

**A1.7 1781.7 - 1785 MHz & 1876.7 - 1880 MHz (GSM/DECT Guard Bands)**

*Question 5.7* Is the award of a small number of concurrent UK low power licences on the basis described the right approach?

BT agrees with Ofcom’s analysis of the options for the GSM/DECT Guard Bands.
Specifically, BT supports the view that the best use of this scare spectrum for the UK is to permit its use by:
- a number of national license holders,
- each operating at low-power levels,
- with voluntary coordination between multiple license holders operating in the same local area.

_Coordination between Multiple License Holders_  
BT recommends that the maximum power level should be set at 200mw (average EIRP). This figure is based on coverage measurements for in-building GSM and on the availability of low-cost GSM hardware operating at this level.

BT recognises the potential costs associated with frequency coordination between a number of GSM licence holders sharing the same band.

In general, BT believes in ‘technology neutrality’ for all spectrum bands. However, with multiple license holders, BT foresees potential problems in coordinating the use of this spectrum between license holders using different technologies. In particular, BT see no easy way to ensure coordination between GSM and (for example) CDMA technologies running in the same spectrum and in the same local area.

BT has therefore investigated and established feasibility of implementing dynamic frequency selection within GSM base stations operating in this band. This function would automate frequency coordination between license holders by:
- Periodically scanning the GSM/DECT Guard Bands for transmitters;
- Selecting and operating on one or more unused frequencies. This selection should be to an agreed algorithm.

BT also sees benefits in the context of coordination between license holders if dynamic power control for GSM base stations operating in this band is implemented, although we believe this could be dispensed with for cases where base stations are operating at very low power, e.g. <10mW average e.i.r.p.

_A Single License Holder?_  
If there should be just one licensee holder for this spectrum (either from the initial auction or via subsequent spectrum trading), BT sees no reason why that single licensee should not have the flexibility to operate at normal GSM power levels.

Also, if there should be a single licensee for this spectrum, BT recommends that the principle of ‘technology neutrality’ should apply.

Clearly, a single licensee wishing to operate at normal GSM power levels (or using a different technology) must ensure that there is no interference with the existing GSM 1800 bands or with the DECT bands.

_Window-of-Opportunity_  
BT believes that the allocation of this spectrum has a very clear window-of-opportunity given its relevance to existing GSM technologies and markets. BT believes that the award of such licences should occur early in FY2005 if this window-of-opportunity is not to be missed.
**Question 5.8** What, in your opinion is the optimum number of low power licences?

BT recognises that the number of licences offered, together with the relative market strength of the bidders, may have a material impact on the performance of the auction. Clearly the existing UK MNOs represent very tangible markets for GSM-based services, and the number of licences offered must take full account of the role and influence these potential bidders on the auction.

To promote service innovation and competition, BT recommends a larger number of license holders than the 3-6 proposed by Ofcom. BT recommends that at least six and preferably up to 10 licences should be awarded.

We assume that Ofcom would introduce a minimal reserve price as part of the auction process, and that this would avoid a situation of a large number of frivolous bidders that could damage Ofcom’s objectives for this band.

### A1.8 1790 - 1798 MHz

**Question 5.9** Do you believe the release of this band is a priority?

BT does not see this band as a priority, but we can support Ofcom’s proposals in §5.109 to §5.112.

### A1.9 2010 – 2025 MHz

**Question 5.10** Is a technology neutral UK licence or licences the right approach?

Yes. However, BT believes that this spectrum would ideally be awarded as a single UK licence on a technology and applications neutral basis. We do not believe that this spectrum should be sub-divided by frequency or by geography, as we believe that this would result in a narrowing of the range of technical/commercial opportunities and/or a potential loss of spectrum efficiency if guard bands became necessary between licences. As it is Ofcom’s desire to see these new awards of spectrum put to effective use, including in support of Broadband Wireless Access, then a single licence package would be the most appropriate catalyst for an economically beneficial use.

We believe that it would be possible to operate alternative technologies to those in the IMT-2000 family within the relevant IMT-2000 masks or appropriate emission limits beyond the edge of the allocated block, and we could therefore support the use of this band on that basis.

We recognise that Ofcom is currently awaiting the outcome of a CEPT review of this spectrum, and we encourage Ofcom to actively pursue an outcome of that review that will allow a UK award of this spectrum to be made within the desirable technology neutral environment.

**Question 5.11** Do you think it useful to run the awards for 2010 - 2025 MHz and 2290 - 2302 MHz bands at the same time to facilitate the option of creating potential FDD pairings? How important do you think this is, compared to say the risk of extra complexity?

The issue of pairing is of interest to BT as it could potentially improve the service offerings. Each of the bands in their own right (due to capacity constraints) would offer limited scope for a full range of broadband wireless access services. We therefore see no real disadvantage in running the two auctions together with this objective of providing an option for paired spectrum.
However, it is possible that the outcome of the CEPT review of 2010-2025MHz would see emerging in Europe a more logical pairing (at least from the 3G viewpoint) with spectrum within the centre 50MHz of the frequency band 2500-2690MHz. A potential disadvantage of considering the pairing of 2010-2025MHz with 2290-2302MHz would then be the difficulty of finding handsets or other end-user devices at low cost and/or within a reasonable timescale for a UK-only FDD spectrum arrangement.

**Question 5.12 Do you have any comments on how the auctions might be linked?**

BT does not believe that the two auctions need be linked in any complex manner. If they take place simultaneously, with the facility suggested by Ofcom for bids that can be conditional on securing spectrum in both bands, then this should suffice.

**A1.10 2290 - 2302 MHz**

**Question 5.13 Is a technology neutral UK licence or licences the right approach?**

In keeping with our answer to Q 5.10 we believe that this spectrum should be awarded as a single national licence and on a technology and applications neutral basis. Furthermore, if the band is to be considered “pairable” with 2010-2025MHz, then the technical conditions that apply to both bands should support pairing, i.e. there should not be any major asymmetries in operational limits between the licences for the two bands.

**Question 5.14 Do you think it useful to run the awards for 2010 – 2025 MHz and 2290 – 2302 MHz bands at the same time to facilitate the option of creating potential FDD pairings? How important do you think this is, compared to say the risk of extra complexity?**

See BT’s answer to Q5.11.

**Question 5.15 Do you have any comments on how the auctions might be linked?**

See BT’s answer to Q5.12.

**A1.11 2500 – 2690 MHz**

**Question 5.16 Is technology neutral award the right approach for the award of 2500 – 2690 MHz?**

Yes. BT supports Ofcom’s proposal in §5.174 for an auction that is technology and applications neutral whilst respecting the IMT-2000 spectrum masks or corresponding emission limits beyond the assigned block edge. However, noting that the IMT-2000 masks for this band are not yet available, BT must reserve its position to return to this issue if we believe the eventual masks are not appropriate for whatever reason.

**Question 5.17 Do you consider an auction in 2006/7 appropriate?**

In our view there is no reason to delay the release of this prime spectrum any further than is necessary in order to clarify its regulatory position. The aim should be to achieve as flexible position as possible regarding use, i.e. technology neutral. Taking into account the European timetable for making this spectrum available; the fact that it is spectrum is presently largely unused; and the considerable industry interest in this band BT, believes that the spectrum should
be made available to the market at the earliest possible opportunity. Ofcom itself should seek to avoid introducing unnecessary complexity or rigidity into this band. It is perhaps the first band of reasonable quality available for release under the new regime and Ofcom will no doubt wish to have an early success under the new proposals.

**Question 5.18** Do you have any views on the relevance of encouraging new entry through the auction design, and if so how this might be effected?

It is not entirely clear to us what might constitute a “new entrant” under circumstances where the use to which the spectrum will be put will hopefully be flexible in terms of applications, and technologically neutral. Nevertheless, the auction design should clearly not preclude such an outcome and in this BT concurs with Ofcom’s position as stated.

**Question 5.19** What do you consider is the right approach to packaging this spectrum?

BT strongly believes that the TDD spectrum (figure 2 of the CD) should not be “packaged” with the paired FDD spectrum. This was done for the original 3G auction, but the outcome has not resulted in efficient use of the TDD spectrum. Indeed, it made the TDD spectrum difficult to use.

Spectrum users wanting both FDD and TDD spectrum should be permitted to bid for both, but any inherent coupling of TDD and FDD would constrain the range of technical and commercial possibilities.

We therefore believe that the spectrum should be auctioned as individual 5MHz TDD or 2 x 5MHz paired FDD channels, thereby allowing spectrum users the opportunity to secure the amount and type of spectrum they desire.

**A1.12 3.6 – 4.2 MHz (3695 – 3875 MHz paired with 4015 – 4195 MHz)**

**Question 6.1** Do you agree that the band should be open for further terrestrial applications once Ofcom has clarified and regularised current usage in the band?

BT believes that there may be some scope for additional terrestrial services to be deployed in this band. However greater clarity of Ofcom’s objectives and approach to the problem is required before the UK discussion can go any further.

BT has on a couple of occasions requested that the Radiocommunications Agency, and then Ofcom, open up a dialogue with the existing spectrum stakeholders in this band. This became particularly important following the ministerial press statement of 28th January 2003 announcing the imminent release of a consultation prior to the award of further licences in this band. This consultation did not, however, progress at that time.

The Radiocommunications Agency consultative group that was working with Industry to look at the possibilities for further FWA licences in this band held its last meeting in 2003. Ofcom has

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5 NEW WAVE BROADBAND New plans for UK wireless broadband, DTI Press Release P/2003/048, 28th January 2003
now withdrawn the relevant working documents that were on the RA web site until December 2003, presumably in anticipation of a forthcoming specific consultation on this band. With the exception of that part of the information now provided in this present CD, we are unclear as to the status of the earlier documentation. We therefore have difficulties in answering this particular question.

Furthermore, BT is unclear as to the meaning of… once Ofcom has clarified and regularised current usage of the band. All existing licences and deployments of Earth stations, fixed links and FWA services have been in place for some years, and it is difficult for BT to understand what might be unclear and/or irregular.

BT will seek to discuss this with Ofcom at an early opportunity, and will then await the expected clarifying consultation on this band.


**Question 6.2** Do you agree with the proposal to award a single UK licence on a service and technology neutral basis?

BT does not have comments to make relating to Question 6.2.

**A1.14 28 GHz (28.0525 to 29.4525 GHz)**

**Question 6.3** Do you agree with the proposal to open an award process for the remaining regional licences on the lines suggested?

BT has no specific comments to make in response to Question 6.3.

**A1.15 32GHz Band (31.8 – 33.1GHz)**

**Question 6.4** Do you agree with the proposal to award one or more UK licences on a service and technology neutral basis?

BT is broadly in agreement with Ofcom’s proposals to award one or more national licenses on a technology neutral basis.

**Question 6.5** How many licences should be offered?

Taking account of the amount of spectrum to be awarded and the kind of capacity that such allocations can support in similar bands we believe that two national licenses could be the best solution.

**Question 6.6** Do you agree that the award process should be on the lines proposed?

We agree that the award process proposed appears to be a reasonable approach.
A1.16 40 GHz (40.5 – 43.5GHz)

**Questions 6.7** Do you agree with the proposal to license part of the 40GHz band to encourage its use for the development of innovative services and technologies?

**Question 6.8** How much of the band should be opened for this purposes and what technical conditions should be imposed?

**Question 6.9** Within what timescale should this licensing process be opened, in particular is the suggestion of the end of 2005/6 appropriate?

**Question 6.10** Do you agree that point-to-point links should be licensed in part of this band on a location specific assigned basis, in the same way the existing point to point bands are licensed. If so how much spectrum do you consider would be appropriate for this?

With regard to Questions 6.7 – 6.10 inclusive, BT could accept Ofcom’s proposals, but we have no specific comments to make. BT does not consider this band to be of high priority.

A1.17 Removing restrictions on the use of spectrum for mobile services

**Question 8.1** Do you have any views on the approach that Ofcom should take to restrictions that prevent the use of spectrum for mobile services other than 3G?

BT does not believe that any such restrictions are necessary, unless they are unavoidable due to technical reasons.

**Question 8.2** Do you have a view on whether Ofcom should impose restrictions on new spectrum licences to prevent use of the spectrum for mobile services other than 3G?

BT does not believe that such restrictions are necessary, and indeed that their existence risks creating anomalies in the development of the broadband market, which will inevitably embrace various degrees of mobility.

**Question 8.3** Do you agree that it may be appropriate to allow a period of time to elapse following an auction before extending liberalisation to auctioned licences, through the removal of restrictions as to type of use and technology? Please comment on this issue either as a general matter, or in relation to particular classes of auctioned licences, such as the 3.4 GHz licences, or both.

No. BT believes that auctioned spectrum should be liberalised from the start to the greatest extent possible.

Spectrum users will wish to bid for spectrum with a particular market, business idea and probably a preferred technology in mind. In general they would wish to bid for the most appropriate spectrum for their application. We would question the advantage to that user of constraining the degrees of freedom available, as this would make it difficult or impossible to adapt to actual market conditions.

**Question 8.4** If your answer to question 8.3 is affirmative, do you have a view on the period that might be allowed to elapse before removing restrictions on the 3.4 GHz licences? We would
also be interested in your views on whether we need to seek to resolve this issue at any particular time.

Not applicable.

**Question 8.5** Do you consider that the criteria used above are the most relevant considerations in relation to the potential removal of restrictions on offering 3G mobile services? Do you have any views on the approach that Ofcom should take towards removing restrictions in existing spectrum licences that prevent use of the spectrum to provide 3G mobile services? Which of options 1-4 above do you think offers an appropriate balance between those considerations that are relevant?

On balance the criteria that Ofcom has developed appear to us to be appropriate including the preliminary conclusions to which Ofcom has come. We also believe that clarity sooner rather than later would be likely to promote the successful outcome of the spectrum awards that Ofcom is proposing.

**Question 8.6** Do you consider that the criteria used above are the most relevant considerations in relation to the application of liberalisation to the award of new licences and the opportunity to offer 3G services?

**Question 8.7** Ofcom seeks views from interest parties on the approach that it should take to the award of new licences (other than in the 2010 – 2025 MHz and 2500 – 2690 MHz bands), and whether these should contain any restrictions as to use of the spectrum to offer 3G services. Do you have any views on which of the options discussed offers the most appropriate balance between relevant considerations?

Regarding Q8.6 and 8.7, we note that the same criteria are used as for removing current restrictions. Again we agree that these appear to be the right criteria and also that the same criteria should be used in both cases. As previously stated BT is a strong advocate of the move towards technology neutrality and as such we are keen that as much spectrum as practically and technically possible should be freed in this manner. We also note Ofcom’s comment that it was previously understood that the 2010-2025 MHz & 2500-2690 MHz bands were known to be earmarked for similar use and that this fact makes the decision between option 1 & 2 more finely balanced.

**Question 8.8** Do you have a view on whether it is useful to have a working definition of the term “3G services”? If so, do you agree with the definition set out of illustrative purposes above?

While we understand Ofcom’s concerns regarding the need to have a practical working definition in order to aid regulatory certainty, we do have some concerns with the definition proposed. This is in part because we see the parameters being mixed between those concerned with the definition of systems, e.g. IMT 2000 and those more commonly associated with service descriptors. Many (indeed most) of the services which people may expect to enjoy from the 3G operators will in almost all respects be common to any other service provision. We believe that it is difficult to arrive at a foolproof definition of such services, and have some concerns that the law of unintended consequences may impact – for example our own “21st Century Network” (21CN) will use as part of its core, standards which are common to those of 3G, with the clear intention of building mobility into our own network. It would be unfortunate if there were unforeseen consequences of this definition leading to a long-term constraint over what could be delivered over BT’s fixed network for instance.
In practice, given that Ofcom is apparently favouring removing any restrictions by, say, 2007, we are not convinced that the definition will have any very practical implications given the time it would take to acquire spectrum and roll-out a network. All of that said, on the face of it, the definition which Ofcom proposes appears to us to be reasonable in the short term and against the backdrop of the proposed removal in 2007 would perhaps be unlikely to have any unforeseen or untoward effects.

A1.18 Trading and liberalization in existing 2G and 3G bands.

**Question 9.1** Do you have view on the appropriate timing for seeking to resolve the issues discussed in this section?

In our view the likelihood is that the 2G & 3G spectrum will be required to offer current services for some considerable time to come. To that extent it does not seem to us to be a high priority to resolve these issues urgently. See also response to 9.3 below.

**Question 9.2** Do you consider that there should, in principle, be benefits from extending liberalisation to the spectrum presently used for 2G services, so that there is greater flexibility for the market to determine optimum use?

In principle, yes.

**Question 9.3** Do you have comments on the significance of the constraints on liberalisation of 2G spectrum that are likely to flow from (a) technical constraints, to avoid undue interference, or (b) international obligations? What approach should Ofcom take to the liberalisation of the 2G spectrum given the international obligations? And what approach should Ofcom take to those harmonization measures that are relevant to the existing 2G spectrum?

We agree with Ofcom’s assessment that this is a complicated area to which it may not be a simple matter of applying the same logic as elsewhere. We believe that regulatory policy and any proposed constraints should be supported by and be relevant to the conditions pertaining to 2G spectrum at the time. As Ofcom suggest it seems unlikely that the market would find a different use for this spectrum at this time, so that it does not seem to be pressingly important to resolve the complexities which undoubtedly exist. Once the playing field has been able to be more clearly “levelled” across the whole spectrum, it may well be the case that a clear way forward will become apparent. In the meantime it appears to us possible that prevailing circumstances may change in ways that may indicate that it is not necessarily in the interests of consumers, operators or competition to retain the status quo. Clearly Ofcom should be free to take action in that event.

**Question 9.4** In your view, how relevant is the structure of competition in 3G services established by the 3G auction to considering the potential extension of liberalisation to the existing 2G bands?

**Question 9.5** Do you have views on how Ofcom should analyse the potential effects of liberalisation of the 2G bands? Which aspects of the analysis do you think will be particularly important?
Question 9.6 Do you have any comments on the options for giving effect to liberalisation of the existing 2G spectrum?

Questions 9.4, 9.5 and 9.6 seem to us very specific questions that have little bearing on general principles. As such their resolution do not appear to be necessary to the generality of this review so that Ofcom can perhaps afford to consider these issues at greater leisure if it becomes clear that a decision is indeed necessary.

Question 9.7 Do you have comments on the extension of trading to the existing 2G licences, or on the extension of trading and liberalisation to the existing 3G licences?

As with Question 9.1, BT generally sees trading and liberalisation as beneficial, and supports their introduction where possible in all bands. However, insofar as there are specific complexities brought about in some bands by previous regulatory decisions it may at some stage be necessary to analyse the potential effects in more detail. However, Ofcom should not allow its prime aim to permit market forces to operate in spectrum management where possible, to be thwarted by the need to consider some specific issues in greater detail. BT takes heart from Ofcom’s stated position in 9.10 in this regard.

A1.19 3G Operators roll out obligations – draft guidance

Question 10.1 do you agree that guidance form Ofcom on its approach to enforcement of the 3G roll out obligations would be helpful?

Insofar as this issue relates to regulatory clarity and certainty it can do no harm for Ofcom to be as clear as possible with regard to its approach in these matters. Amongst other things this ensures that there is an even playing field amongst competitors who may otherwise come to different conclusions about likely actions and thus take qualitatively different decisions.

Question 10.2 What are your views on Ofcom’s proposed guidance on enforcement action?

In our view there are a number of principles which need to be upheld which clearly include transparency, proportionality, and that the rationale is non-discriminatory and objective. We agree with Ofcom that the effect on customers is also paramount and that revocation would appear to be, in all except the most blatant case of non-compliance, somewhat disproportionate. The other main principle which needs to be upheld is that the sanctions should be appropriate for the market conditions pertaining during the lead up to the compliance date. The draft guidance is a reasonable start but clearly does not stand up as a standalone document in its current form. No doubt Ofcom can remedy this easily and readily.