Issue 1
19 June 2007

BT Response to the Ofcom Licence Exempt Framework Review

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1. Summary

BT welcomes the opportunity to comment on the framework for licence exempt and lightly licensed operation in the UK, and agrees with Ofcom's general objective of facilitating a more open and flexible approach to relaxed licensing.

BT believes that the choice of whether to identify spectrum as licensed or licence exempt should be based on the likelihood of interference between users. Ofcom's decision to choose a licence exempt approach appears to be based on the current lack of demand for these bands rather than the technical characteristics of likely users. While this may be appropriate in the short term, it is possible that, as demand for these bands increases, the interference between users may become an issue. We therefore suggest that, as there is no pressing need to make decisions in these bands, Ofcom could put the implementation on hold until demand arises at which time Ofcom would be in a better position to judge the appropriate licensing mechanism.

However, we broadly agree with Ofcom's licensing framework based on current demand and potential uses and believe that it provides a useful clarification of its intentions.

More specifically:

- We support the increasing implementation of licence exemption about 40 GHz, and believe that most of those bands identified as "Group C", with the exception of the 40.5 – 42.5 GHz band, should be made available on a licence exempt basis.

- We support the increased availability of licence exempt and lightly licensed bands in the range 105 – 275 GHz, and agree that "Option 2" is the best way forward as/when the demand for using such bands is identified

- We don't currently foresee any demand for spectrum above 275 GHz, but can accept the opening of these bands on a licence exempt basis when the demand materialises

- We can support the introduction of devices with a low power spectral density limit above 10.6 GHz, although we believe that they should be subject to the same operational restrictions as the currently permitted UWB devices, unless studies demonstrate otherwise

- We believe that the distinction between licence exempt and light licensing is potentially useful, and we would not fully support their convergence, but prefer to see the retention of light licensing in those cases where it is beneficial.

2. Responses to specific questions

Question 1: Do you agree that the spectrum commons model should be the preferred approach for licence-exempt use of spectrum, and that application-specific allocations should only be considered where technical constraints or safety issues require this?

BT agrees in principle with the proposal that licence exempt use should preferably be on a commons model, rather than an application specific basis. However it is recognised that there may be certain cases where it would be possible to permit a very specialised application (e.g. "tank level probing radar") due to its obscure nature, whilst a more generalised use might not provide the required confidence of non interference. In such cases, there may be benefit in making a band available on an application specific basis.

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Question 2: Do you agree with the proposal for multiple classes of spectrum commons?

BT would support the proposal for multiple classes of spectrum commons, recognising that the existing restrictions ("politeness rules" and "polite protocols") do differ across the various licence exempt bands. Categorising these into classes would help to provide a better and clearer view of operation across the bands, providing there is the possibility of harmonising classes across several bands; if it is found that each band has a unique set of rules and protocols then the benefit of classes would be lost. However looking ahead to the possible opening of many new bands on a licence exempt basis (as discussed in Sections 6 & 7 of the Framework Review), there would appear to be the opportunity for creating harmonised classes of operation.

Question 3: Do you agree with the distinction made between the licence-exemption and light-licensing regimes?

The principle of light licensing is not fully clear, but it is our understanding that it applies to a band where registration of terminals is required, both to provide the ability to identify the location and operation of terminals for the protection of existing (primary) users, and also to enable co-ordination to be undertaken if interference is experienced between lightly licensed users. It is also understood that the second element of that basis, namely co-ordination between lightly licensed users, is currently unproven, since there is currently insufficient experience of interference between such lightly licensed users.

Question 4: Do you agree with the view that the licence-exemption and light-licensing regimes will converge in the future?

In our understanding of light licensing (as elaborated in response to Question 3 above), it is believed that there is a useful distinction between licence exemption and light licensing, which may be appropriate to be maintained under certain circumstances. Taking the 5725 – 5875 MHz band as an example, it is our understanding that this band would not have been made available for broadband wireless access applications, had the registration process not been available, due to the concerns of interference into the MoD systems. Furthermore, the presence of a registration process has provided some confidence to users of the band (registrants) that if significant interference problems were to be experienced, then there may be an opportunity to identify and co-operate with the fellow users of the band, to everyone's mutual benefit.

Consequently, we believe that the light licensing regime may be appropriate in certain circumstances, and so we would support its retention as an alternative to the licence exempt regime when appropriate.

Question 5: Do you agree with the proposed mixture of licence-exempt and light-licensed use of the 105−275 GHz spectrum? Do you agree with the bands that have been identified for such use?

We agree that the propagation characteristics above 105 GHz do make it very unlikely that any equipment operating in that range would present interference to other users of the band. Therefore Ofcom's proposal to relax the use of these bands is to be supported, providing it is undertaken with appropriate care to protect those services that might experience interference.

Recognising that Footnote 5.340 prohibits all emissions in certain bands, their exclusion would clearly be appropriate (i.e. Group 4 bands). The small amount of spectrum which have been allocated (on a primary basis) to the Amateur Services (i.e. Group 3 bands) would seem also appropriate for exclusion. Consequently we agree with the 3 options presented (recognising that there could potentially be a fourth option, of making all 135 GHz of spectrum available on a lightly licensed basis). Taking due consideration of the existing Mobile and Fixed Primary allocations in the Group 1 bands, the requirement for light licensing of terminals is probably unnecessary. Furthermore, recognising the greater significance of the passive services in the Group 2 bands, a light licensing regime in these bands would seem to be a prudent measure, to enable operational restrictions to be imposed at a later date, if required.

Consequently we agree with Ofcom's preference for "Option 2" of licence exempt operation for Group 1 bands, and lightly licensed operation for Group 2 bands. However recognising that there are still opportunities for using bands at lower frequencies, which would generally be more attractive, we believe that there is currently no demand for using the frequencies above 105 GHz on a licence exempt, or lightly licensed basis. Therefore, whilst it may be beneficial for Ofcom to announce their *intention* to make these bands available without the need for a licence, it would be advisable for Ofcom to refrain from opening these bands on that basis, until such demand has been identified. This would still allow industry to have confidence that spectrum would be made available, whilst still allowing Ofcom the opportunity to amend the policy before its introduction, if deemed necessary.

Question 6: Do you agree with the view that the use of the 275−1000 GHz spectrum should be licence-exempt?

The opening of the bands from 105 – 275 GHz (as discussed above in response to Question 5) will probably provide sufficient opportunity for licence exempt operation for the foreseeable future, that we believe that there is unlikely to be any interest in the frequencies above 275 GHz. Consequently we don't see any demand for using these bands. However we don't foresee any problems if Ofcom were to open these bands on a licence exempt basis, although we believe that Ofcom does not need to act until the demand for using these bands has been identified.

Question 7: Do you agree with the view on the levels of future demand for licence-exempt usage in the 40−105 GHz spectrum? Do you agree that the Group-A bands identified above should be considered for licence-exempt use? Do you agree that licence-exempt and light-licensed use of the Group-C bands identified above should only be considered when there is evidence of demand for such use?

We support the 8 GHz identified as Group A bands, with particular support for the 59 – 64 GHz band, recognising the work on multigigabit WLANs currently being undertaken in IEEE 802.15, and now ETSI BRAN.

We find it somewhat surprising that the Framework Review has proposed opening significant quantities of spectrum above 105 GHz on a licence exempt basis, even though there is currently no identified demand for such use, whilst it is proposing that evidence of demand is required for the Group C bands in the range 40 – 105 GHz.

Looking at these Group C bands (40.5 - 42.5 GHz, 45.5 - 47 GHz, 47.2 - 48.2 GHz, 49.44 - 50.2 GHz, 66 - 71 GHz & 95 - 100 GHz), we believe that most of these, with the exception of the 40.5 – 42.5 GHz band which is understood to be scheduled for auction by Ofcom during 2007, should be made available for licence exempt operation as soon as possible.

Question 8: Do you think it could be desirable for transmissions at levels below certain power spectral density limits to be exempt from licensing?

Recognising that UWB devices are now permitted to operate in the UK, under certain circumstances, this has effectively created a precedence for other similar devices operating at a very low power spectral density. Indeed it is possible that by permitting such devices to operate over a wider range of frequencies, the potential for interference may be reduced since the burden of interference will be distributed over a broader frequency range. However this is likely to be limited by the availability of devices operating in other frequency bands.

However the proposals from Ofcom have focused only on the low power spectral density characteristic of UWB devices, and appears not to have considered the other operational restrictions on such devices (as given in ECC Decision (06)04), particularly the restriction to indoor operation which was a factor in the compatibility studies which led to the permission for their operation. It would appear that the precedence of UWB is being used as the basis of the argument for justifying licence exempt operation of low power spectral density devices, in which case we believe that the same operational restrictions should be applied in all cases.

Question 9: Do you agree with the transmission limits proposed in this document?

In general, we could agree with the transmission limits proposed in the document, although we do wonder whether a 20 dB tightening of the permitted emissions is sufficient for those bands which are subject to Footnote 5.340 ("All emissions are prohibited in the following bands …"). Above 10.7 GHz, the Footnote is not protecting narrow bands which could be "accidentally" straddled by a UWB type device; it is protecting bands which may be several hundreds of Megahertz wide (e.g. 23.6 – 24.0 GHz), which might deserve greater protection.

Question 10: Do you agree with the harmonisation strategy discussed above in the context of licence-exempt devices?

We recognise and would agree that the UK should develop regulatory measures which are broadly in line with the European and International procedures. This is especially true for licence exempt devices which are typically, by their nature, readily portable and likely to be carried across national borders. We would encourage Ofcom to promulgate any proposed changes to the licensing framework, both to minimise the risk of accidental infringement of licensing in other countries, and also to encourage the market adoption of other frequency bands for such licence exempt devices, with consequential economic benefits.

We also fully endorse the principle that any harmonisation should impose a minimum of restrictions, and be as application neutral and technology neutral as possible, although we believe that application restrictions, if applied with care, can provide opportunities which might not otherwise exist.

Question 11: Do you agree with the view that no additional regulatory instruments, beyond those available today, are required for the protection of licence-exempt equipment?

We would agree that there are sufficient regulatory instruments in place for the protection of licence exempt equipment.

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