Issue 1
Due date: 15th February 2005

INTELLECT RESPONSE TO OFCOM' S SPECTRUM FRAMEWORK REVIEW CONSULTATION 2004/2005

Following is the 4th Draft Intellect Response, effective date 1st February 2005 (there was no revision subsequent to that date):

Introduction

Intellect welcomes this opportunity to respond to the Ofcom Spectrum Framework review.

Intellect supports the Ofcom Vision set out in section 7 of the consultation document. Intellect shares the liberalising instinct of Ofcom. Indeed the Intellect lobbying has been consistently for a more liberal market with less 'red tape'. It therefore comes as a surprise to us to find it appropriate to advise that there could be areas where to liberalise too far in respect of spectrum management could be contrary to the UK interest. Specifically the complete abandonment of spectrum allocation policy would not be in the interests of this country. There will still be a need for an allocation policy in support of National policy objectives.

Intellect is of the view that in order to enable the rapid deployment of new wireless technologies currently being developed to support applications, services and content requiring broader-band connectivity, sufficient appropriate spectrum in the range of 2 to 10 GHz must be allocated for wireless broader-band access and backhaul schemes. Although Spectrum Trading and Liberalisation may help, we believe that consolidation of smaller bands into a large contiguous band will be difficult to achieve without the assistance of allocation measures.

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We note that a single land owner would never be allowed to block the development of needed roads or railways. Similarly we feel that a single spectrum licence holder should not be allowed to block the development of an information superhighway.

However we also note that as presented in this document the packaging of spectrum for auctions could restrict the technologies that could use the spectrum where perhaps it could be better to leave such choices to the market, subject of course to the usual considerations of, for example, international agreements.

Specific questions

Q1: Are there any other major medium- to long-term spectrum management issues that this review should be considering? Are there any other significant technological or market developments that this review should be aware of when developing its thinking?

One key issue that has not been addressed is how will manufacturers access the new market? Is it assumed that the existing system of compliance to the RTTE Directive, normally by using ETSI standards developed following interference and other studies by CEPT, will continue to be the normal route for market access? Is it assumed that the R&TTE directive will continue?

It is recognised that absence of unacceptable interference to and from other radio products will continue to be required so it is unlikely that significant change to the current system would be appropriate without new measures being put in place to manage interference. However for this new type of market to produce the results hoped for there will need to be a greater variety of products available, both more technologies and existing technologies manufactured for use in a greater variety of

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spectrum bands. This will require a considerable increase in spectrum studies and in standardisation activities. These are expensive. The process can also be slow, although the benefits could be considerable.

The new market can also be expected to result in lower sales for each permutation of technology and band and that can be expected to increase product costs and choice. That could be mitigated if fewer manufacturers chose to make each technology and band combination however that would reduce competition in equipment supply.

Competition in the telecommunications services is also potentially affected by Ofcom's proposed approach of liberalisation. Today, consumers can change service providers taking their terminals with them. A liberal approach will mean it is less likely that their terminal will be compatible with the new service provider. On the other hand this policy may sometimes promote the possibility to use the same equipment in a given band around the globe if each country allows the possibility for different types of networks to be deployed in that band. The proliferation of multi-mode handsets will also help achieve this roaming.

The document makes very little mention of administrative incentive pricing/AIP yet we understand that this is a significant element of UK spectrum management policy. Intellect would be interested in further information as to how Ofcom see the role of this in the future and whether further changes are envisaged given the significant increases in fees that have occurred since its introduction. We are unclear about the reference to 'market forces' on page 17 of the document given that the pricing is actually administratively set. We suggest 'economic forces' might be meant instead?

Q2: Do you believe it is useful to publish a compendium of issues? How frequently should it be published? What information should be included?

Yes, Intellect agrees that this is a good idea and it should also be kept well up to date. The UK Frequency Allocation Table that is already published is very useful, moreover the contents should be relayed to the ERO for representation on EFIS.

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Q3: Are there any other issues of sufficient significance to merit mention in this document?

Auction design has not been discussed in detail in this document. It is a matter suited to separate consultation.

Intellect notes the implications of auction packaging to both operator capability to deliver services and equipment design of both terminals and infrastructure elements.

We note that spectrum auctions can raise very significant amounts of money. We would become very concerned if any future Chancellor of the Exchequer were to see this as a stealth tax that could assist in balancing the budget rather than as just a mechanism to ensure the optimum use of spectrum.

Q4: Are there important lessons to be learnt from experience in other countries that is not addressed here?

Q5: Do you agree with Ofcom's intent to maximise the use of trading and liberalisation?

Intellect supports the Ofcom Vision set out in Section 7 of the Consultation document.

Intellect shares the liberalising instinct of Ofcom. Our objective here is to outline the problems that need to be overcome to ensure that it is a success and to propose maximum limits beyond which it may could become counter productive.

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Spectrum costs in both secondary trading and auctions are in part passed on to the consumer, in markets which are not perfectly competitive. To the extent that overall use is thereby reduced, trading is not an optimal means of allocation.

It is true that producer surplus is optimised by trading, but as Ofcom has stated (Dec 1) some of these efficiency gains are at the expense of the equipment suppliers, and are therefore an overestimate of the spectrum value.

Q6: Are there other areas, apart from those identified above, where trading and liberalisation should be restricted? Are there areas identified above where you believe the trading and liberalisation could be fully implemented?

Externalities are much more common than is indicated here. It applies not only to 'public service' broadcasting: it applies to *any* broadcasting (except pay per view) since the viewers' benefits from watching are not linked to the advertising revenue. Similarly the benefits gained from someone receiving a phone call or pager message are not usually linked to the callers' costs. More generally all consumer surplus in imperfectly competitive markets is positive externality.

This section on other public policy objectives is rather narrow.

In general trading should be restricted –

- In services where a competitive market does not exist, or where competition in an existing service would be harmed.
- Where suppliers could be harmed to the extent that consumer choice is significantly limited.
- Where benefits from a public service provision could be harmed.

Q7: Do you agree with Ofcom's approach to providing spectrum for licence-exempt use?

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No, we feel that appropriate regulation would encourage the increased use of licence-exempt bands. The licence exempt status does not necessarily imply that there should be no technical restrictions. On the contrary the absence of market mechanisms makes technical regulation more appropriate rather than less, in order to ensure optimal use.

However in order to encourage innovation there should be a mix of bands, some with minimal regulation.

It is important that Ofcom addresses the utility of the license-exempt spectrum (in terms of minimising constraints), not just the amount available.

It is stated that a market mechanism would have been preferred (page 25). This could be possible (e.g. by sale to a manufacturer) but in general any increase in costs of supply would reduce total welfare. It is possible that this is offset by better co-existence of equipment so a case could be made to auction some spectrum in this way. Competition considerations would require several bands to be made available.

We would question some of the figures mentioned in the report on the proportion of spectrum that is license exempt. For example if 600MHz of spectrum is license exempt at present then the 4.3% figure mentioned implies a total usable spectrum of just 10 GHz.

Q8: Is Ofcom's proposed methodology to estimate the amount of spectrum provided for licence-exempt use likely to deliver the right results?

No. Different bands have different properties and suit different applications. Ofcom should also consider applications such as vehicle radars when looking at amounts of license-exempt spectrum required.

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Ofcom's assertion that the 5GHz band is 'broadly unused' is inconsistent with the wide take up and use of WLAN, which now mainly uses 2.4 GHz and will increasingly use 5GHz in future. Certainly it is necessary to look at usage, but it should include the usage of recently licenced spectrum too (e.g. 3.4GHz.)

Q9: What is the appropriate timing and frequency bands for making available any additional spectrum needed for licence-exempt use?

Due to long lead times in spectrum management/standardisation, the future requirements must be addressed *now* for availability approximately 7 years ahead.

Q10: Do you agree with Ofcom's longer term proposals for a market based spectrum management method?

Not entirely, (assuming we have answered the correct question of the 2 versions of Q10 on offer, since the text is different in Annex D). We have concerns on some details, as set out in our response to Q11.

Intellect is encouraged by the proposal on section 4.5 to design the auction packaging in accordance with the best information available as to the most likely use, following consultation with industry. Packaging of the spectrum for an auction is a vital consideration for any bidder as it affects not only the services the successful bidder can offer but also gives suppliers of equipment vital information on the services that need to be accommodated in the design of the equipment.

Q11: Is the approach set out here, and in Annex H, for developing technology-neutral spectrum usage rights appropriate? Are there alternatives?

We do have significant concerns with the detail of Annex H..

We do all share the goal of developing technology-neutral spectrum usage rights, at least provided interoperability and competition is not harmed (See Q1), and that the flexibility for the operator to choose any available standard requires certain minimum technical constraints to prevent harmful interference.

Intellect has many concerns over the proposals on the concepts and use of specific rights and restrictive rights as set out in §4.5 and Annex H of the consultation document. Intellect has concerns with the new proposals for the concept of dual spectrum rights, i.e. the licence-specific *Specific Rights* defined by virtue of current use, and the generic *Restrictive Rights* that become applicable immediately upon change of use. The restrictive rights as currently proposed would offer very little possibility to do anything useful. We would urge Ofcom to re-examine how existing equipment usage rights can be turned into spectrum property rights, possibly based on ensuring that existing interference levels produced at a certain distance from the transmitter must not be increased when changing use, without agreement.

Intellect believes that the burdens of the administrative and technical processes, the timescales and the costs involved would all need to be kept to a minimum.

Interference limits should be defined in association with certain probabilities (time percentages), since an absolute guarantee of never exceeding a certain interference level is not realistic given the statistical nature of radio propagation phenomena.

Intellect does not believe that Recommendation ITU-R P.1546 is the appropriate propagation model for the purposes proposed in the consultation document. For example it is not valid above 3 GHz; it is empirical and so does not benefit from the use of detailed terrain data; and it does not give the same predicted path loss in both directions. We believe that Recommendation ITU-R P.452-12 used with appropriate topographical models is much more appropriate.

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Intellect would welcome further information on Ofcom's intentions in relation to the proposed "indicative noise floor".

Intellect would be willing to work with Ofcom to try and resolve some of the difficulties that have been highlighted and believes that a dialogue between Ofcom and industry, including workshops, could be productive.

Q12: Should Ofcom do more to resolve interference?

Interference problems will increase with the new market. In addition to all the traditional measures there will also be the increased probability that some radio products that are allowed in one EU member state will no longer be allowed in other EU member states. Controlling their import may be challenging.

Intellect notes that changes of use may require the agreement of neighbouring spectrum users. This could introduce extra costs for all concerned. Potential problems would be that:

- Neighbours could effectively hold a veto on spectrum use changes
- There would be no obligation to come to an agreement, indeed no obligation to discuss
- No real incentive to help at all – except perhaps payment
- Many neighbours might need to use intermediaries
- The process of dealing with multiple neighbours on a case-by-case basis could be protracted and expensive

This situation is different to the property analogy as there is not an arbitration mechanism.

Ofcom may need to play a greater role in helping secure agreements when changes are proposed that would not cause adverse technical impact on others.

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Moreover, Ofcom will need to retain a strong technical competence to undertake these responsibilities and to arbitrate effectively.

Q13: To what extent should Ofcom intervene in promoting innovation?

Intellect stresses that the deployment of new and innovative services will require investment and so a considerable level of confidence in the eventual successful outcome is essential in any new communications system based on obtaining spectrum. In Annex H the consultation makes it clear that when change occurs the default restrictive rights are used. These do not allow a service to be delivered. However, to re-establish specific rights the neighbours must agree. If as many as one decides to hold- out, the service may not again be switched on. This appears to pass a truly excessive amount of power to neighbours without any apparent recourse to arbitration.

Intellect remains extremely concerned that the problem of so-called "hold-outs" may prevent spectrum trading and subsequent liberalisation being a viable method of consolidating a number of smaller blocks of spectrum into consolidated blocks of sufficient size to carry high-value services. We are therefore encouraged by the recognition of this problem in section 4.7.2 of the consultation and are keen to understand more about the extent of the intervention Ofcom is considering to promote these new innovative services.

A regulator has an important role to ensure that any barriers to innovation are removed.

Q14: Do you agree with Ofcom's proposed approach to harmonisation?

Yes but not with the summary of the RIA which states that Ofcom plans to 'steadily withdraw from harmonisation.'

Q15: Can you foresee any problems with the proposed approach to harmonisation other than those listed above?

Q16: Do you agree with Ofcom's proposal to continue with division by frequency as the primary method of dividing the spectrum?

This approach is consistent with the way that spectrum is used today. That could change but it is unlikely to change rapidly.

Q17: Is Ofcom's approach of not Intervening to mandate entitlements in time appropriate?

Yes

Q18: Do you agree with the RIA?

The table of risks seems incomplete, bearing in mind the types of market failure identified in the main document.

The mitigation proposed for 'disruption to customers' gives us serious concern. Is it not the job of Ofcom to intervene when the market fails?

No attempt has been made to quantify costs to manufacturers (e.g. through fragmentation and consolidation of licencees) or costs to consumers (again through consolidation.)

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