

UKB Group's Response to Ofcom's consultation on a Framework for Spectrum Sharing

Introduction

The UKB Group ("UKB") welcomes this consultation and the opportunity to comment on the issues raised.

UKB supports increased transparency of information regarding existing spectrum allocations, including with respect to public sector spectrum, in the form of a register of users. This would enable potential users easily to identify unused spectrum and approach the existing user to propose a trade or temporary assignment.

We believe that Ofcom should open up more spectrum bands to permit leasing under the terms of the licence.

Ofcom should also consider alternative forms of spectrum sharing, such as Multi-Operator Core Networks ("MOCNs"), as more particularly described below and in the Annex.

Barriers to Sharing

Question 1: Do you have any comments on the barriers to increased sharing that we have identified above? Which are the most significant and why? Are there others we should take into account?

Question 2: Have you experienced or are you experiencing the effects of these barriers? If so, in what circumstances and with what impact?

We agree with the barriers to sharing that Ofcom have identified.

Availability & transparency of information

Transparency of information regarding to whom spectrum is currently licensed/ allocated is a pre-requisite to enabling it to be shared. We note that Ofcom has made improvements in this area, but we believe more could and should be done. Ofcom's database should be searchable in different ways – by band, by individual block, by usage category and by licensee/ organisation. It should also

be possible to “zoom in” to a particular band and see how the band is divided and who the licensees are.

The database should also indicate whether or not individual frequency blocks are or are not in use currently. However, we believe that commercial sensitivities and issues of national security will preclude information as to specific geographic usage.

UKB's experience: [X]

High transaction costs / Insufficient Financial incentives

We agree that there may be instances where the potential revenue to be achieved by a licensee entering into a sharing agreement would not sufficiently outweigh the transaction costs and management time involved in order for the licensee to be interested in sharing.

We agree that incumbents sometimes have little financial incentive to engage with potential sharers. We believe that the AIP regime is the best way to deal with this and there may be instances where the AIP currently does not adequately reflect market value. However, the AIP must never be set at a level that reflects a value higher than market value. Thus, if the AIP reflects but does not exceed market value, there may always be strategic reasons for a licensee not wishing to enter into sharing arrangements, which will outweigh any potential revenue.

UKB's experience: [X]

Uncertainty about the future

We believe that this is perhaps the greatest impediment to sharing on a geographic basis, at least for the private sector. Commercial operators are unlikely ever to be able to rule out a geographic area for future commercial coverage/ commercial use. This may be less of an impediment for other kinds of licensee, including certain public sector users, such as PMSE or PMR users. These users are more likely to have a clear idea of areas where they will not require use of particular spectrum. Other public sector users may have sensitivities around

However, capacity sharing arrangements such as MOCNs (as described in detail below) enable multiple users to share capacity in a way that does not preclude more than one operator using spectrum in a particular geographic area, and would not preclude an operator from entering a particular geographic area after another operator (with whom they shared an MOCN arrangement) had begun to operate there.

The risks of co-existence

We agree that this can sometimes be a disincentive to sharing; if not an absolute barrier, the need, for example, of co-existence tests to be carried out

can lead to considerable delays in the implementation of sharing arrangements. However, on the whole we do not think this is as much of a barrier as the factors mentioned above. In many instances coexistence of licensees can be managed with appropriate co-ordination processes.

We note that one of the benefits of Multi-Operator Core Networks is that co-existence issues are avoided.

Authorisation constraints

We agree that authorisation constraints can be a barrier to switching, as many licences contain restrictions on certain types of sharing. For example, mobile spectrum which has been auctioned was not auctioned with a view to the possibility of sharing. Indeed the Mobile Trading Regulations prevent trading without a competition check being undertaken by Ofcom and spectrum which is governed by the Mobile Trading Regulations is not, unlike several other kinds of spectrum, permitted to be leased by the licensee to another operator.

We believe that express permission to lease mobile spectrum, subject to a competition check and short public consultation by Ofcom, would improve the efficiency of spectrum use, improve levels of competition in networks and enable the release of capacity to the market to meet the demands of users.

UKB's experience: [X]

Harmonised and mandatory spectrum use

It is important to note that restrictions on the use of spectrum can themselves be a barrier to sharing. Both the EU and the ITU recommend that national regulatory authorities harmonise certain bands for certain uses. This makes sense in order to encourage the development of ecosystems for devices and chipsets based on economies of scale.

However, the policy of the European Commission occasionally to mandate particular uses of certain frequency bands, in limiting the use, thus restricts the potential users of spectrum and potentially leads to spectrum not being used in the most efficient way.

[X]

We note that Ofcom's policy tends to be as permissive as possible, for example permitting a technology neutral approach under the terms of spectrum licences, and we very much support that approach.

Sharing tools and enablers

Information Tools

Question 3: Are the categories of information set out in paragraph 5.5 the right ones? Are there any areas here that you think we should prioritise? Are there other types of information that we should be improving?

Increased information on public sector use

We would welcome the provision of increased information regarding the use of spectrum by the public sector. We believe that the public sector is where spectrum is most likely to be being used inefficiently.

It would be useful if any spectrum that was currently held by, but not being used by, the public sector could be identified so that potential users could approach the current holder with a request for a trade.

This was not suggested in the consultation document, but it would be useful if Ofcom could maintain a register of spectrum that is currently available or likely to become available in the foreseeable future.

Information on real time and planned use

In the private sector, however, the demands of shareholders and investors mean that corporate entities are less likely to hold assets which are not making an adequate return. We would strongly object to any proposal to require private corporations to publish information on the planned use of frequencies or the current use in geographic terms, due to the commercially sensitive nature of such information. To publish planned use would naturally alert competitors to the future rollout plans and other strategic intentions of the licensee and would thus amount to a potential threat to investment.

Even providing information on real time usage in geographic terms could alert competitors if it related to, for example, a commercial trial.

We also recognise that the public sector users will have similar issues regarding confidentiality on the grounds of national security. It is sufficient for potential sharers to know simply whether or not spectrum is being used (and who the licensee is), not *where* it is being used.

Information on actual interference

UKB would have no objection to providing information regarding actual levels of interference. [X]

Information on spectrum demand from existing and potential users

It would be particularly useful for potential users to be able to register (perhaps anonymously) demand for a particular frequency range and for there to be a mechanism by which existing users could be made aware of that demand. We

note that Ofcom already performs this role on an informal basis on certain occasions.

We also agree with the suggestion put forward by Government in its Spectrum Strategy to develop a single source of information on spectrum managed by the public sector which would identify what frequencies are in use at what geographic locations at a granular level. We think this would be extremely helpful in enabling optimum use of this scarce resource, though we recognise the practical difficulties relation to national security concerns that may arise.

Question 4: Do you think the information about spectrum characteristics described in paragraph 5.9 would be useful? What information would need to be included as a minimum to make it useful?

To some extent, Ofcom already publishes this information on its website in the Frequency Allocation Table and the Spectrum Information System. We are unconvinced of the benefits of suggestions such as a propagation indicator as we think most potential users who are seeking to acquire spectrum will have a clear idea of what they are looking for.

Market Enablers

Question 5: Have we identified the relevant market enablers, or are there others we should take into account? For each one, what is the potential for it to facilitate sharing and what are the downsides? Are there any that you think would be particularly effective or problematic?

Ofcom suggests that the following tools could be used in order to encourage spectrum sharing:

Spectrum trading and leasing

We support Ofcom's policy of encouraging trading and leasing and, as stated above, we think Ofcom could do more to permit leasing in bands where it is not currently permitted, such as spectrum which is covered by the Mobile Trading Regulations.

Ofcom should also consider encouraging use of Multi-Operator Core Networks, which are another form of spectrum sharing (see below).

Spectrum pricing

We agree that spectrum pricing should reflect opportunity cost and should take account of demand from potential sharers.

Auctions

We are not convinced of the merits of auctioning spectrum specifically for sharers. We think that it would be hard to coordinate demand from various bidders and would make the auction process extremely complex.

Multi-Operator Core Networks

In addition to the market enablers that Ofcom suggests, UKB would suggest that Multi-Operator Core Networks are an excellent way in which two operators can share frequency (one or more bands) and share a radio network, whilst each operating their own core network and being able to compete fully and effectively.

UKB Networks' parent company, HKT, has successfully employed two MOCN spectrum capacity sharing arrangements on a commercial basis in Hong Kong. Such arrangements are efficient, cost effective and enable fast access to spectrum. Consequently, the Hong Kong Communications Authority made the continuation of the MOCN agreement with China Mobile a condition of the acquisition of CSL by HKT.

We have attached a slide pack which explains the mechanics of MOCNs in more detail and would be happy to provide further details to Ofcom if required.

Technology Enablers

Question 6: Have we identified the relevant technology enablers, or are there others we should take into account? For each one, what is the potential for it to facilitate sharing and what are the downsides? Are there any that you think would be particularly effective or problematic? What, if any, role should Ofcom play in helping to develop them?

Ofcom identifies various technology enablers, including:

- Protocols for accessing shared spectrum
- Geolocation database technologies
- Sensing
- Automatic reporting of interference
- Frequency and band agile equipment

We agree that all of these approaches may be useful in certain instances.

The technology underlying MOCNs can also facilitate efficient spectrum sharing. For example, dynamic spectrum allocations are the most spectrally efficient version of MOCN, enabling each party to "burst" into the spectrum allocation of the other as needed, if the other party's allocation is not fully utilised. This works well when, for example, the users of one operator tend use the network at different times of day from the users of the other operator. Each operator is thus able to utilise spare capacity when the other operator's network is quiet.

Authorisation Tools

Question 7: Do you have any comments on the authorisation tools that we have identified above? Are there others we should take into account? For each one, what is the potential for it to facilitate sharing and what are the downsides? Are there any that you think would be particularly effective or problematic?

Information requirements

As set out above, we would not support licence obligations to require the publication of information regarding current or planned use of spectrum, other than on a confidential basis to Ofcom.

Tiered Access

Ofcom suggests that a hierarchy of rights for different categories of user in a given frequency band could lead to more efficient use of spectrum. This could give priority to licensed users over unlicensed users.

Whilst we think this option has potential in certain limited instances, we do not think it would be appropriate in all cases. We would not, for example, support its use in bands harmonised for mobile/ fixed communications networks.

Question 8: Are the characteristics of use we have identified sensible and sufficient to provide a high level indication of sharing potential? Are there other factors that we should expect to take into account? Are there any factors that you consider to be particularly significant? Are there any which we should attach less weight to?

The consultation states that Ofcom would take into account the various factors listed in Table 1 “when considering shaping a spectrum authorisation to deliver optimal use of spectrum”. UKB’s view is that, for *existing* spectrum licences, provided that sufficient information is made available in the form of a database or register as described above, then sharing arrangements should be left up to the licensees to discuss with any third party who may approach them or whom they may approach.

In situations where Ofcom might be considering making new spectrum available specifically for sharing, then we agree that these are the right factors for Ofcom and any interested parties to be considering.

UKB Group
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