

Name and title under which you would like this response to appear:

Mr Jim Munro

Representing:

Organisation

Organisation (if applicable):

Intellect

What do you want Ofcom to keep confidential?:

Keep nothing confidential

If you want part of your response kept confidential, which parts?:

Ofcom may publish a response summary:

Yes

I confirm that I have read the declaration:

Yes

Ofcom should only publish this response after the consultation has ended:

You may publish my response on receipt

Question 1: Do you agree with Ofcom's proposed overall approach to improving the management of public sector spectrum holdings and, in particular, with Ofcom's conclusion that it will generally be preferable for public sector bodies to interact directly with the market?:

Intellect agrees with Ofcom's approach and with the conclusion that it is preferable for public sector bodies to interact as directly as possible with the market. However the mechanism by which this is facilitated may need further detailed study, since many public bodies will be unused to such commercial behaviour.

Intellect would advise caution when considering any moves to prevent spectrum hoarding, since to some extent hoarding and speculation are an inevitable consequence of a free market, usually constrained by the dangers for the speculators of 'getting their fingers burnt'. It is the experience in other fields that in all but the most exceptional circumstances, attempts to prevent such behaviour by 'direction' are counterproductive - they tend to inhibit the market without preventing the undesirable behaviour.

In order to facilitate efficient release and trading of this spectrum it will also be

important to have as much transparency as possible in respect of:
? how the spectrum concerned is presently used,
? the fees currently paid for the latter use,
? what spectrum may potentially become available, and also when?
???i.e. information comparable to that published by Ofcom on their web site in respect of tradeable licenses in the commercial sector.

It will of course be necessary to work out how to reconcile such an approach with legitimate national security concerns about detailing the current usage of some of the spectrum.

Question 2: What factors do you consider Ofcom should take into account in determining the programme of reform in the framework for managing public sector spectrum holdings?:

The first requirement must be to ensure public safety. Aside from the obvious dangers, any failings here could easily discredit the whole reform process. It is recognised, however, that 'safety' is not an absolute which can prevent any changes in spectral use, but any proposed changes to a safety-related service will, of course, have to be accompanied by a sound safety case.

The second requirement is to maintain the quality of service of those who already use the spectrum. Once again, inconvenience due to disruption of air or sea travel or of mobile communication services would soon discredit the whole reform process, to say nothing of the economic damage it would cause.

A third consideration is the requirements of national security. The military, the police and the emergency services must have the spectrum they need both for their 'routine' activities and for 'emergencies'. If necessary, in the latter case this would be by an ability to regain spectrum at short notice in emergency. They may also need spectrum to be able to test and train with equipment in the U.K. which will be used in other theatres where different spectrum allocations exist. Once again, however, these considerations are not absolute.

Once these three have been met, Intellect proposes that the next consideration should be the overall benefit to the United Kingdom, to its citizens in particular and to its economy in the abstract.

Question 3: Do you consider that the proposals should be phased in?:

Intellect has no view on this matter.

Question 4: Do you agree with Ofcom's proposals about the frequency bands that offer the greatest potential benefits from band sharing? Are there other frequency bands where the facility to trade or lease spectrum from public sector bodies would be particularly attractive?:

Intellect certainly agrees that the radar band between 2.7GHz and 3.4GHz has the greatest benefit for sharing since it is so wide, but it also has major problems due to the presence of:

- a) safety-related air and marine surveillance systems
- b) military air surveillance systems required for national security

c) frequency allocations for marine radar and NATO radars for which we have international agreements within that band.

It should be noted that the radar L-band (1215MHz-1350MHz) also contains safety-related services, and that the band 4.2-4.4GHz is used, at least in part, for radar altimeters. These are, again, safety related systems using frequencies which are internationally-coordinated. Unlike the S-band, there is no prima facie scope for reducing the bandwidth occupied by this service since it requires its full bandwidth in order to achieve the range resolution which is needed at low altitude. A potential mitigation compared with the other radar bands is that the systems have small receiver apertures, so a higher field strength is required in order to cause significant interference. On the other hand, the antennas are airborne and looking straight down, so they have no antenna-pattern protection from interferers.

Note that at present the marine radar S-band is assigned to this purpose all over the country, although there are generally no ships inland. It may be superficially attractive to reuse these frequencies in 'inland' areas. One issue which would then have to be borne in mind, is that it may then no longer be possible to use those frequencies for experimental or special-purpose systems inland. Whilst there have never been a large number of such systems and it is not known whether there are currently any, this is something which should be borne in mind.

Another issue which might arise is the case of ships sailing inland up rivers and canals. Again, this is not thought to be a major issue, since few ships which are large enough to carry S-band radars sail far up rivers except in specialised locations such as along the Manchester ship canal. However it is a matter which should be investigated before any attempt is made to reuse these frequencies inland. A much greater issue would arise, particularly with the case of small boat radars, if an attempt was made to reuse the marine X-band inland, but this is much less likely to be attempted since those frequencies are also used inland for Airport Surface Movement -detection Equipment radars (ASME's).

Question 5: Do you agree with Ofcom's proposed approach to awarding public sector licences and RSA?:

Intellect broadly supports Ofcom's approach. We welcome the greater detail of discussion of RSA compared to some previous consultations. A significant lacuna, however, appears to be any discussion of whether or how RSA might be varied after it has been granted. Clearly some scope for variation must be possible, at least over the long term, but the more capacity Ofcom retains to vary its terms after it has been awarded, the less 'rights' the possessor has, so the more of its potential economic value is thereby retained by Ofcom and by the government.

The principle of converting RSA into a license is welcomed, since RSA seems to be to some extent an improvisation to overcome imperfections in the legislation. It does not seem that it would have been too difficult to have established a single 'right' to hold and use spectrum, being something akin to the freehold or leasehold possession of land. Such a right would have been defined explicitly in primary legislation. Indeed it ought to have been so, if it is as valuable as the studies on which the case for liberalisation say it is, and which could have applied equally to the Crown, those who wish to transmit, and to those (radio astronomers) who wish to hold the right to transmit but not use it, so that they are clear to receive. This is rather like someone owning the freehold of their back garden, not because they want to build a house on it but because they don't want someone else to do so.

Given the importance of the latter aspects, it is clearly likewise important that the definition and implementation of the process of converting RSA into a license should be executed by Ofcom as a matter of some urgency.

The limitations on Ofcom's ability to guarantee the quality of service for users of bands adjacent to those where RSA is introduced is, however, a potential worry since it is currently unquantified. Since the underlying purpose of spectrum liberalization is to turn the spectrum into 'real estate,' i.e. something akin to the land model, some care has to be taken to control the worst case situation that can arise. It is important to ensure that this worst-case is more akin to your neighbour selling his house and the buyer then painting the front door a colour you happen to dislike, rather than like him being given permission to plant a tree which then grows and undermines your garage, about which you may be able to do nothing. If 'security' of one's ownership of a piece of spectrum turns out to be too fragile, that will reduce its value and could undermine the economic benefits of liberalization.

It is believed that it will be difficult to allow 'technology neutrality' in the radar bands without leading to dangers of mutual interference. Current marine radars are short-pulse devices and operate with many systems on the same frequencies in the same region. Whilst there are studies which have shown that the same is possible with some other modulations (for example with FMCW modulation, but in the somewhat different case of 77GHz automotive radars), obtaining mutual compatibility between disparate systems is much harder.

The situation would become still more complex if it was desired to achieve the same end at X-band, since there is a desire (and in many cases a requirement) to be able to trigger internationally-standardised Search and Rescue Transponders (SARTs). This effectively requires the radar to have the ability to transmit high peak power levels. There are also requirements to trigger RACONs, but this requirement has been removed at S-band and could conceivably be mitigated at X-band as well, although even that would be very difficult to achieve.

Question 6: Should public sector spectrum trading be introduced at this stage in the Channel Islands and Isle of Man?:

Intellect prefers that, for consistency, spectrum trading should be introduced in the Channel Islands and the Isle of Man at the same time as it introduced in the UK.

Question 7: Should there be additional grounds, eg safety-related, for Ofcom to refuse consent to a proposed trade in certain frequency bands or for certain applications?:

Intellect endorses the continuing principle that national security should be one reason to withhold consent for a spectrum trade.

Intellect further believes that it would be useful for 'safety' to be one ground under which Ofcom could refuse consent to a proposed trade.

If 'safety' was not a ground for refusing consent to a trade, the only time it could be considered when deciding whether to release spectrum or not would be before the spectrum was initially released. Since there would then be little control over the uses to which this spectrum was subsequently put, any decision on whether a proposed sale was 'safe' would have to be more conservative than if there was the opportunity to control what happened to the spectrum later on. Adding such a criterion when

considering consent to subsequent trades may thus have the effect of making it easier to release spectrum in the first place.

Clearly, further work would then be needed to try to define what the safety-related criteria were (e.g. the need to safeguard air and sea travel and the effectiveness of the emergency services), also under which circumstances they could be invoked, so that those who had rights in the released spectrum would be able to judge how readily it could be traded.

Comments:

This Intellect Response has also been submitted today (4th October 2007) by EMail to Laurence Green.