

The Institution of Engineering and Technology (IET) is pleased to respond to Ofcom's Spectrum Framework Review: the Public Sector consultation dated 12 July 2007.

The IET has in excess of 150,000 members worldwide drawn from a broad range of science and engineering disciplines. The membership represents a wide range of communications expertise, from technical experts to business leaders, encompassing a wealth of professional experience and knowledge, independent of commercial interests. This letter has been prepared on behalf of the Institution's Trustees, after inviting input from its membership.

The Institution has responded, within its professional competence, to the questions raised in the consultation where it believes it can make worthwhile comment.

**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 markets?

At present the radio spectrum is, for legacy rather than technical reasons, very unevenly valued and used. The IET notes that this implies a substantial economic disbenefit and it should be an objective for Ofcom to correct this imbalance over time. Ofcom's public sector spectrum holdings management proposals will help correct this situation.

It is important that the proposal implementation is carried out in manner that does not impede any actual service innovation. The objective would be that spectrum should be no more encumbered than is strictly necessary. Allowing public sector bodies to interact directly with the markets is seen as supporting this criterion. Due care is required to ensure that legacy service performance is not degraded through introduction of new services – see the response to Question 7.

**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?

No comment.

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

The IET agrees with Ofcom's analysis and conclusion that the proposals should be introduced in a phased manner, across individual bands. Each band will have different technical, national interest, international obligation, and 'good-neighbour' (interference) considerations that could not be adequately dealt with by an 'all-at-once' approach. See also the response to Question 7.

**Question 4:** (a) Do you agree with Ofcom's proposal about the frequency bands that offer the greatest potential benefits from band sharing?

The IET notes that there have been instances of band sharing where Government user requirements have placed severe practical restraints on its use and thereby effectively rendered the band unusable by anyone but themselves. A recent example was to mandate the use of Dynamic Frequency Selection (DFS) in the 5.8GHz and 5.4GHz bands. The 5.8GHz band has changed only recently to make DFS advisory rather than mandatory.

(b) Are there other frequency bands where the facility to trade or lease spectrum from public sector bodies would be particularly attractive?

The IET observes that given the above the regulatory challenge is to ensure that the brokering of band sharing leaves the civil users with sufficient usage rights to be able to make a viable business.

Please see the IET's response to Question 7, concerning the need consider differing technological requirements of legacy systems and new applications, including the former in adjacent bands.

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

The IET agrees with the conclusion that to get most benefit from trading (change of owner), liberalisation (change of use) has to be allowed; and that without RSAs the societal benefits of the public sector spectrum holdings management proposals would be diminished.

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

No comment.

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

There are many technical considerations following on from the proposals for change of use of parts of the public sector spectrum holdings.

In the consultation document at 6.15 Ofcom notes that "*there may be high demand for additional spectrum below 1 GHz for broadcasting and cellular in less populated areas*".

Legacy systems in these bands are often coverage (not capacity) limited systems, with signal strengths falling to very low levels at the outer reaches of the coverage area. But the service in these areas is still required, and must be able to operate. As a consequence (by design) receivers for these services have high sensitivity front ends. For mass produced receivers high sensitivity is often at the expense of a lack of immunity to high level signals in adjacent bands i.e. poor front end selectivity. Conversely, cellular systems achieve service coverage through multiple transmission sites with handover. As a consequence their signal levels are relatively high in the service area.

There was experience in the USA where legacy coverage limited public safety systems were adversely affected by the introduction of cellular technology in adjacent frequencies/bands. This is described by the FCC at:

<http://www.fcc.gov/pshs/spectrum/800mhz/bandreconfiguration/downloads/FCC-02-81A1.pdf> . Industry developed best practice guidance to address the situation can be found at: [http://www.safecomprogram.gov/SAFECOM/library/spectrum/1101\\_AvoidingInterference.htm](http://www.safecomprogram.gov/SAFECOM/library/spectrum/1101_AvoidingInterference.htm)

The IET notes that a number of the bands the MOD is considering for release, or sharing, have civil aeronautical and maritime service 'neighbours' in co-shared, or adjacent, bands – consultation section 6.9 and Table 6.1 refer.

Given the safety of life implication the IET wishes to bring this US experience to Ofcom's attention to help with their endeavours to ensure a safe implementation of change of use for some public sector spectrum holdings.