UK Broadband's response to Ofcom's Call for Input on Promoting Investment and Innovation in the Internet of Things

UK Broadband ("UKB") welcomes the opportunity to respond to this Call for Input. We have concentrated our response on the connectivity and, in particular, spectrum requirements for IoT.

Frequency band: Does the demand suggest a particular frequency band, or could a number of bands potentially be used? Would any new frequency bands need to be harmonised for IoT use internationally?

UKB does not advocate that spectrum should be made available solely for the purpose of M2M and IoT. Different applications are likely to have different requirements in terms of bandwidth (fixed or wireless) and we recommend that demand forecasts for IoT are simply incorporated into the Government's and Ofcom's overall demand forecasts for spectrum.

Any spectrum band that has available devices which work for a particular application can be used for IoT, as long as it is possible to connect those devices to the internet in a low cost and efficient manner. GPRS, 3G/HSDPA and LTE all have IP components to support Internet access.

Many IoT applications demand relatively low bandwidth and merely exchange telemetry data. Video cameras, on the other hand, would require more bandwidth. So users will select the most appropriate and efficient connectivity for the application, whether it be fixed line, fixed combined with WiFi or any suitable mobile/wireless technology.

Another key consideration will be to ensure that the QoS requirements of users and applications can be met. This will involve the deployment of capacity in licensed spectrum of whichever 3GPP spectrum band is appropriate; most likely the lower frequencies (800/900MHz) for wide area coverage and the higher frequencies (3.5/3.6GHz) for dense capacity areas.

The TDD LTE standard will certainly lend itself to IoT once suitable low cost connectivity modules appear for embedding in IoT devices.

Authorisation approach: Should any new spectrum bands be licensed to one or more network operators, or would a licence exempt approach be more appropriate? Should a single, national approach be developed, or is there benefit in adopting multiple, location-specific approaches?

We would not recommend a sub-national approach to licensing, since spectrum trading would likely lead to consolidation of such licences eventually.

We believe that both dedicated and shared spectrum will be appropriate for different kinds of application. Some applications will no doubt demand dedicated spectrum.

Coexistence: Could some IoT applications coexist with existing users of the spectrum, either in the same or adjacent bands? What steps could be taken to reduce the likelihood and extent of interference?

Yes. M2M and IoT devices are no different to any other and there are no additional interference issues. M2M communication is no different than that between, for example, two smartphones.

Sustainability

An important consideration is the long term upgrade path or "roadmap" for a particular technology. The migration of mobile telephony customers from 2G to 3G to 4G has been aided by the ongoing development of smartphones which have driven customer demand for migration. However, upgrading of M2M and IoT devices may not be as straightforward – partly because there will be a great number of them and partly because many will be relatively low cost, utilizing the cheapest or most battery-efficient technologies. The next generation devices may not have cost effective replacements or a business case for the user to replace them. Migrating the many 2G GPRS-based M2M devices away from GPRS could therefore take many years.

Ofcom should therefore have a view to the long term when forming its approach. The question of whose responsibility it is to maintain and upgrade the network and the devices is an important one.

UK Broadband
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