

*Representing the Communication Services Industry*



**Ofcom consultation on future mobile competition and proposals for award  
Of 800 MHz and 2.6 GHz spectrum**

FCS response- May 2011

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## Summary

Ofcom's challenge in releasing the 800 MHz and 2.6 GHz spectrum is to ensure rapid and maximum deployment of mobile broadband. FCS suggests that the spectrum packages could be a single package, with the entire spectrum in the hands of one entity that acts as a pure wholesaler like Openreach, or as Ofcom proposes, four national licensees and several sub national RANs. Under Ofcom's proposed option of four competing national licensees there must be adequate spectrum for each and a minimum of 2x10 MHz of the lower frequency spectrum to enable a healthy fourth operator to compete effectively.

Rapid delivery of services requires regulatory oversight and FCS suggests wholesale access obligations on the licensees and national roaming between the networks.

FCS supports an allocation for sub national RANs to encourage niche services and argues that there may be a role for setting aside sufficient spectrum to ensure that the Critical National Infrastructure has broadband spectrum for the future, following the example of the USA.

## Introduction

The Federation of Communication Services, FCS, is the trade association for the communications services industry representing 320 member companies who deliver products and services by means of wireless, copper and fibre. The majority of FCS members are affected in some way by this consultation and we are pleased to have the opportunity of offering this response.

The views that we put forward are from FCS members who are:

- Existing and potential new entrant mobile licensees
- Mobile service providers and resellers of mobile services who wish to deliver mobile broadband to their customers
- Providers of services to the critical national infrastructure and business radio

Each of these companies is able to support the government's growth agenda by delivering service either to business customers or the general public or both.

## Key issues

Ofcom has carefully set out its objectives and stresses the importance of promoting competition and delivering wide coverage of services, which we applaud. These objectives combine to deliver both UK Government and European requirements for mobile broadband. However it is unclear when full mobile broadband service will be delivered. Once the spectrum is released and network operation is started commercial delivery is probably up to 5 years away and the challenge is to ensure rapid deployment.

We would like to comment on how these objectives can be met by consideration of

- Spectrum packages

- Mobile competition at the retail level
- Wholesale access obligations to ensure rapid delivery
- National roaming
- The role of auctions
- Other licensees

### ***Spectrum packages***

Ofcom's own research in The Measuring Mobile Broadband in the UK report [May 2011]: <http://stakeholders.ofcom.org.uk/market-data-research/telecoms-research/broadband-speeds/main/mobile-bb-10> demonstrates that dongles and data cards have limitations when delivering data over 3G and that, even though network optimisation can maximise service, there is increasing customer demand. The spectrum released by the proposed auction should support projected demands into the next decade.

There are various ways that spectrum can be packaged to bring services to UK customers.

#### **1 One package**

The entire available spectrum could be auctioned to the highest bidder, who then acts as a regulated utility offering wholesale access on fair and equivalent terms to competing mobile service providers, with a regulated rate of return and universal service obligations. This option would be following the trend, initially demonstrated by the joining of T-Mobile and Orange to form Everything Everywhere to form a single entity, and the predictions that further consolidation will follow in Europe. The successful bidder would be a real national wholesaler focussed on maintaining and securing the highest quality national public network. In order to ensure a fair competitive market the national wholesaler would not have a retail arm but sell services at the wholesale level, just as Openreach does today. FCS is cautious about the complete success of functional separation of Openreach from the BT Group and for the public mobile spectrum market would suggest that the spectrum entity is quite separate from any retail organisation.

#### **2 Competing licensees**

Ofcom has proposed that in line with the current public mobile market there should be a minimum of 4 national wholesale licensees and up to 10 shared low power licensees, which maintains Ofcom's infrastructure competition policy.

In this scenario, Ofcom's high level rules for spectrum floors, safeguard caps and spectrum set aside for sub-national operators appear reasonable.

The spectrum packages proposed in this award together with existing spectrum holdings of the four current national wholesalers and those released by the Everything Everywhere entity would need to be equivalent to maintain the fair infrastructure competition principle. A healthy fourth operator will require a minimum of 2x10 MHz of low frequency spectrum to be able to compete effectively as Ofcom says it wishes.

### ***Mobile competition at the retail level***

For either of the spectrum package scenarios set out above the crucial means of delivering mobile service to customers is to ensure a healthy competitive retail market so that customers across the UK can easily access current and new services and applications. FCS retains the view that there continue to be barriers to retail competition in the mobile sector that are not experienced in the fixed broadband market

### ***Wholesale access obligations to ensure rapid delivery***

Ofcom and Government are clear that this award is critical to the delivery of mobile broadband, but receipt of services in the hands of customers is not a given. We are inclined to favour fair and equivalent regulated access to national wholesalers either as a spectrum licence condition or as a threat if wholesale access is not forthcoming for the scenario of competing national licensees.

### ***National roaming***

A national roaming obligation among competing licensees would ensure that mobile broadband is delivered where needed. There are already roaming obligations for access to 999 and 112 calls, which demonstrates that this is technically possible. Ofcom would need to ensure that fair termination rates are set without any delays due to reference to the Competition Appeals Tribunal, but this approach would help to satisfy “not spots” and “patchy access”. Mandatory national roaming would avoid consumers having to purchase mobile services from a particular carrier on the basis of coverage; it would also reduce the problem of consumers being sometimes reluctant to port away from one network operator to take advantage of new services on a different network in case the coverage of the new operator is not as good.

### ***Role of auctions***

While auctions will be suitable for the national commercial wholesale operators, as in this case to encourage roll out and use of mobile broadband, we do not support allocation of spectrum by auction for every type of licence and noted that in Ofcom’s draft annual plan 2011/12 section 3.8 et al, Ofcom now recognise “**The market alone is unlikely to secure efficient allocation and use of public assets like spectrum and numbering in all cases**”.

Once spectrum is released by auction into the market place it is difficult to recover unless rules on “hoarding without use” are brought into play.

### ***Other licensees***

Ofcom accepts that national wholesalers may act to constrain entry by sub national RANS and as the competition regulator should act to negate this tendency.

We believe that there is demand for sub national RAQNS/low power licences. DECT guard band licences acquired by auction in May 2006 are in use and providing useful services to consumers and business customers in niche markets. The proposal for 10 licences (although this number is not clearly justified) would be supported by existing and potential new licensees. The FCS Mobile 200 group of DECT guard band licensees has demonstrated that competing licensees can work together to develop an engineering co-ordination code of practice which currently operates effectively for the licensees. This template could be brought into play for the new low power spectrum licensees.

Ofcom has not considered the requirements of other potential licensees that require national coverage but for whom the service levels of public telephony services are inadequate for some of their functions. The Critical National Infrastructure community including the utilities, transport and emergency services require certain access to spectrum to fulfil their primary legal obligations. Each of these sectors has time limited obligations set by government and European policy, where communications that are both self provided and publicly available are required.

The railways are one example and quoting from the submission by Network Rail:

*“The railway, in common with other critical national infrastructure, relies on high-quality, highly reliable telecommunications. The quantity and quality of information needed to run the network safely and efficiently is set to continue to grow as signalling, passenger information and train management become increasingly sophisticated to deliver the railway Britain’s economy needs.*

*Currently, GB mainland railway operational communications, to train drivers and key staff, is delivered using legacy analogue radio systems, which are gradually being replaced by GSM-R. All of these systems are built upon a common foundation of good quality, dedicated radio spectrum. This is however just one system element required to deliver a mobile communication system fit for purpose. The next generation of operational mobile communications, such as Automatic Train Operation and In-Cab CCTV, will require even more intensive data flows.*

*Auctioning spectrum to commercial users makes sense if we want to maximise government’s revenues. However, requiring providers of critical national infrastructure to compete with mobile telephone operators risks either under-providing essential spectrum, or over-paying for it.*

*Maximising income from the auction must be set against the cost to essential public services of doing so. Network Rail’s income is made up of direct grant from government and income from train operators, many of whom are in receipt of public subsidy. Most other critical national infrastructure is publically funded; forcing competition between essential public services and commercial operators is unlikely to deliver value for money.*

*One way to proceed would be to reserve sufficient spectrum for critical national infrastructure. This approach has been followed in the United States and ensures that revenue from commercial operations is maximised and the public interest protected.*

*If this approach is not followed, in favour of a conventional price-led auction, it is likely that critical national infrastructures may have to buy mobile data services from commercial operators. This would be problematic, because the specifications of the two types of use are quite different. The railway requires extremely reliable and high-quality communications, well beyond what is required for mobile telephone networks. If a mobile telephone signal is weak it is an irritation; if a train with in-cab signalling loses contact with the control centre it would cause significant delays to multiple trains; in the worst-case scenario it could become a safety risk.*

*In summary, we believe that auctioning spectrum is appropriate for commercial users but not critical national infrastructure or emergency services users. The different specifications required, as well as value for money for taxpayers, mean that to require Network Rail and others in a similar position to compete with mobile telephone services risks under-specifying or over-paying, or both. Reserving a proportion of the spectrum for critical national infrastructure would enable the government to maximise revenue from commercial operators without denying essential public services’ rather different telecommunications needs. This approach could either be achieved through direct access to suitable spectrum, or by applying public service commitments to some of the auctioned spectrum”*

## Answers to specific questions

*Question 4.2: If we were to offer shared access low-power licences in some way, do you have any comments on the appropriate technical licence conditions which would apply for the different options?*

Shared access could be arranged in similar to the DECT guard band licensees through the development of an engineering code of practice co-ordinated by their trade association and in addition would

benefit from mandated roaming.

*Question 5.1: Do you agree that national wholesalers need a reasonable overall portfolio of spectrum to be credible providers of higher quality data services? In particular, do you agree that national wholesalers need some sub-1 GHz in order credibly to be able to offer higher quality data services? Please state the reasons for your views.*

Yes we agree that a broad portfolio of spectrum is needed and we expect that Ofcom will encourage licensees to have well engineered systems to maximise spectrum utilisation.

We note that the 2x5MHz assignment package (as proposed for sub 1-GHz) is too small to offer much of a high-quality data service. See answer to 8.1.

*Question 5.2: Do you agree there is a material risk of a significant reduction in the competitive pressures, at least to provide higher quality data services, in retail and wholesale markets without measures in the auction to promote competition? Please state the reasons for your views.*

As we have noted in our Key Issues above the time frame for delivery of services (based on LTE) is likely to be half a decade, much later than fixed line broadband. Ofcom will need to encourage faster delivery and competitive delivery to ensure customers can use the spectrum for services. We are in favour of regulated access to wholesale services to promote competition at the retail level. This will ensure the nation as a whole benefits in the digital dividend, and fills in today's "not spots, otherwise these will continue.

*Question 5.3: Do you agree there is a risk of potentially beneficial sub-national RAN uses not developing without measures to promote competition? Please state the reasons for your views.*

We support including measures to promote competition as innovation is more commonly found in sub national entities. Ofcom should where possible ensure that access to spectrum is not a barrier to innovation and should foster sub-national RAN uses.

*Question 5.4: Do you agree with the analysis that at least four competitors are necessary to promote competition?*

This appears reasonable for Ofcom's policy of national infrastructure competition, although as we have discussed above there are other policies which might deliver a better outcome. Regulated access conditions could be a useful fallback that Ofcom should ensure is available

*Question 5.5: Do you agree that the specific measures we propose to take to ensure there are at least four holders of such spectrum portfolios are appropriate and proportionate?*

As we comment on spectrum packages under Key Issues above, if there are to be four spectrum licences awarded [other than the sub-national RAN] the spectrum packages should be equivalent. The current proposal appears to result in one of the four licensees having a 5MHz channel, which would not be used for LTE which requires a minimum channel width of 10 MHz. we recommend that Ofcom reconsiders the sub 1G spectrum packages.

*Question 5.6: Given the measures we propose to take to ensure four holders of spectrum portfolios sufficient credibly to provide higher speed data services, do you agree that it would not be appropriate or proportionate to introduce a regulated access condition into the mobile spectrum licences to be awarded in the combined award?*

We support a regulated access condition. The Government's aim of UK to be the best broadband provider needs stimulus to bring spectrum to the market; the access companies can deliver services rapidly to customers.

*Question 5.7: Do you consider that we should take measures to design the auction to assist low-power shared use of 2.6 GHz? If so, what specific measures do you consider we should take?*

Yes. Ofcom should ensure measures taken to facilitate roaming between national and sub national networks to encourage hub and spoke radio use.

*Question 6.1: Do you have any comments on the proposal to include in one of the 800 MHz licences an obligation to serve by the end of 2017 an area in which 95% of the UK population lives, while providing a sustained downlink speed of 2Mbps with a 90% probability of indoor reception? Do you think there is another way of specifying a coverage obligation that would be preferable?*

The specification of coverage in terms of population density may not align well with the UK Government's growth agenda. The use of mobile communications and especially mobile broadband communications may be extensive while travelling on trains (for example). Coverage for on-train communications is already acknowledged to be inadequate (see section 6.7) and the proposed coverage specification appears to not address this.

To alleviate this potential shortfall it may be preferable to examine a coverage obligation that seeks a high level of population to be addressed while at the same time specifically providing adequate broadband service to the railway and other critical transport routes throughout the UK. Thus the 800MHz licensee may be obligated to meet the population coverage requirement with specific geographical obligations also (perhaps along transport route lines). As an incentive they may be offered more radio spectrum.

It is also noted that the specification of coverage by population significantly reduces the likelihood that the public networks resulting from this award will be usable for mission-critical communications by the emergency services (and others). Whilst these users will no doubt continue to use public services on a best-efforts basis, the coverage specification proposed within the award appears to confirm that a further series of spectrum arrangements will be necessary to meet the future needs of the emergency services.

In relation to indoor reception, the current rules restricting the use of cell enhancers etc. imply that the mobile network operator must make provision for indoor coverage. This may prove challenging at 2.6GHz due to the high frequency and the absorption of the signal by modern building materials.

In this context it is important to note that measures taken under the carbon agenda to improve temperature control by shielding the glass in railway carriages and commercial and domestic buildings have the unfortunate side effect of reducing the likelihood of adequate signal reception. Broadband connectivity has been achieved within carriages by some Train Operators through the use of access

equipment but this has been done with WiFi technologies and not mobile technology. Mobile radio network reception has been left unaddressed due to the regulations banning enhancers.

We question whether 2Mbps is sufficient and whether 6Mbps would be a more suitable threshold

*Question 6.2: We would welcome views and evidence on the costs and benefits of imposing an additional coverage obligation focused on particular geographical areas, and if such an obligation were to be imposed what might be the appropriate specification of geographic areas?*

We offer no comments on this

*Question 6.3: Do you have any comments or evidence on whether an additional obligation should be imposed to require coverage on specific roads?*

We suggest that national recognised transport routes have sufficient capacity for peak usage levels.

*Question 6.4: Do you have any comments on our proposal not to use the combined award to address existing not-spots?*

We offer no comments on this

*Question 6.5: Do you have any comments on our proposal not to impose 'use it or sell it' obligations but to consider including an additional power to revoke during the initial term of the licences?*

Yes: use or sell conditions may well have benefit in ensuring that spectrum as a national resource is used and not hoarded.

*Question 7.1: Do you have any comments on the proposals relating to the duration of the initial licence period, our rights to revoke the licence during this period, the charging of licence fees after the end of the initial period and our additional revocation powers following the initial period?*

We would expect this policy principle to be applied to all licences for commercial services

*Question 7.2: Do you have any comments on the proposal to amend the spectrum Trading Regulations to apply to the auctioned licences in the 800 MHz and 2.6 GHz bands, to include a competition check before we consent to a spectrum trade of mobile spectrum and not to allow transfers that would increase the number of 2.6 GHz low-power licensees?*

It is not clear how Ofcom settled on the total of 10 low power licences and we suggest that there is no limit on the number of low power licence holders if they are to be allocated by auction. However Ofcom's policies to encourage competition and maximum spectrum use should not be restricted by limiting leasing and trading among the low power licensees.

*Question 7.3: We welcome views on the merits of the proposed approach to information provision; in particular concerning the type of information that may be helpful and any impacts that publication of information might have both on licence holders and the wider spectrum market.*

We repeat our caution on publishing information that could have security implications.

*Question 8.1: Do you agree with the way in which we are taking account of the main factors relevant to spectrum packaging and why?*

The Government is seeking to provide broadband services to the UK as part of a growth agenda. In the light of this it may be preferable to consider packaging influenced by an examination of equivalence of provided service. This would set up packages that looked at what service level can be expected in a major urban area (catered for by schemes operating in the 2.6GHz band) and those services that may be possible to deliver to a wider rural geographic area.

With an assignment as small as 2x5MHz at 800MHz it seems most unlikely that any licence holder will be able to deliver as rich a portfolio of services to the end users as they could with the proposed packages at higher frequencies. Indeed, it may be very difficult to provide any reasonable data rate with such a small assignment at 800MHz. This analysis is in fact repeated in section 8.88 of the consultation document in relation to the TDD band within the 2.6GHz range. In that case it is argued (very reasonably) that small lots are not efficient for the envisaged purposes.

It may have been considered that a combination of 800MHz and 2.6GHz may be adequate. This is not proven and there appears to be room for considerable doubt that any such combination could usefully be brought to bear in rural areas at reasonable cost.

In considering this question, the use of existing spectrum holdings may be likely to be relevant because these holdings may not have been capable of providing the desired outcomes in the past, changes in permitted technology may make them more valuable in the future.

The consequence of this would be that the rural services will be noticeably de-rated compared to the urban services from that provider. This is not in accordance with Government policy. Additionally, the inability for some winners to deliver as good a service as others has significant potential for market distortion.

Taking this into account, it would appear that larger 800MHz minimum packages are desirable (as an example, the packaging of option 2 in table 5.1 shows 2x10MHz as the smallest 800MHz package).

The band 821-832MHz is not included in the current award. This is clearly a potentially important future opportunity into which other types of services could be deployed. We would expect that a full analysis of other uses, particularly services of public interest, will be necessary prior to any policy of a future award of this spectrum being established.

*Question 8.2: Are there other factors that we should consider to develop our approach to packaging? If so which ones and why?*

See 8.1

*Question 8.3: Do you agree with our packaging proposals for the 800 MHz band? Please give reasons for your answer.*

See 8.1

*Question 8.4: Do you agree with our proposal not to allow relinquishment of 900 MHz spectrum and why? Do you have any other comments regarding our packaging proposals for the 900 MHz band?*

*Question 8.5: Do you agree with our proposal not to allow relinquishment of 1800 MHz spectrum and why? Do you have any other comments regarding our packaging proposals for the 1800 MHz band?*

*Question 8.6: Do you agree with our proposal not to make provisions to include 2.1 GHz spectrum in this auction and why?*

*Question 8.7: Which aspects of our packaging proposals for the 2.6 GHz band do you agree with and why?*

We have commented on spectrum packages in our Key Issues above. The overall proposals for packaging of the 2.6GHz band appear reasonable. This is supported primarily as it offers the opportunity to deliver high-grade services in the future.

*Question 8.8: Do you agree with our proposed approach for eligibility points and why?*

*Question 8.9: Which approach to reserve prices do you think would be most appropriate to secure optimal spectrum use in the interests of citizens and consumers, and why?*

*Question 9.1: Do you agree with our proposals for the auction design and why?*

The text of this consultation seems to imply a reserve price close to the market value could well be set. This would be around £200M for each 2x5MHz of 800MHz spectrum and £40M for each 2x10MHz of 2.6GHz spectrum.

We have no comments on the following questions.

*Question 9.2: Do you have any comments on the proposed auction rules as explained in section 9, Annex 9 and Annex 10?*

*Question 9.3: Do you have any comments on how we should approach the payment of deposits and licence fees?*

*Question 10.1: Do you have any comments on our proposal to use 800 MHz price information as derived from the auction to estimate the full market value of 900 MHz spectrum?*

*Question 10.2: Do you have any comments on our proposal to use an average of 800 MHz and 2.6 GHz price information as derived from the auction to estimate the full market value of 1800 MHz spectrum?*

*Question 10.3: Do you have any comments on the proposed approach to convert lump sum amounts into annual payment?*