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techUK response to the Ofcom consultation:
2.3 and 3.4 GHz spectrum award:
Consultation on a 3.4 GHz band plan, varying UK Broadband Limited's licence and a call for inputs on other aspects of the award

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techUK | Representing the future

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Introduction

About techUK

techUK represents the companies and technologies that are defining today the world that we will live in tomorrow. In a very real sense techUK represents the future.

At the heart of tech in the UK is an ecosystem of 270,000 companies producing digital technologies, products and services. From east to west, north and south, from enterprise class organisations to established medium-sized businesses, growing small businesses and an exciting generation of tech start-ups: the UK is a hotbed of tech talent and techUK exists to represent the sector in its entirety.

Our role as techUK is to ensure that we seize the potential for good and address the disruptive new challenges that change and innovation always present. We work to understand the opportunities that technology provides; to support the companies and innovators that can realise those opportunities.

This underpins our simple vision to ensure that tech is good for the UK, the UK is good for tech and that tech is good for people.

Preamble

techUK is pleased to have this opportunity to contribute to Ofcom's thoughts on how spectrum can be released to meet increasing market demand.

With the rapid growth in demand for wireless connectivity, access to spectrum becomes more important than ever. Opportunities to access spectrum singularly or on a shared basis potentially offer an increasingly expedited route to additional spectrum capacity.

This is even more important when the spectrum being considered is seen as prime for the delivery of 4G services today and potentially 5G services in the future.

In our role to promote industry and the views of both small and large players we also see the potential to enlarge on the traditional auction method of making available access to spectrum and encourage both Ofcom and Government to explore alternative mechanisms. Such mechanisms could also encompass more real time approaches, i.e. allowing organisations to access spectrum on a shorter term basis, reflecting the current investment environment.

Consultation and Call for Inputs Questions and Answers

Question 1: Do you agree with our proposal to award the 3.4 GHz band in a way that is consistent with an unpaired (TDD-compatible) band plan only, and to make this decision sooner rather than later? If not, please set out your reasons and any evidence for your view.
techUK concur and agree that the available spectrum in the 3.4GHz band (150 MHz between 3410 MHz and 3600 MHz) is best awarded in an unpaired format as this offers the greatest potential for future harmonised use in alignment with the ECC Decision (11)06 , for Mobile, Fixed Communications Networks (MFCN).

techUK is aware that CEPT-ECC are consulting on the Revision to ECC/DEC(11)06[1]. Noting that there may be ongoing use in 3400-3410 MHz by radar systems, techUK believes that there should be greater clarity on the future occupation of this band by such systems, including any block edge mask at the 3410 MHz border, if radar is to be retained in that part of the band.

Question 2: Do you agree with our proposal to vary UK Broadband's licence so that it encompasses the frequencies 3560-3600 MHz instead of 3480-3500 and 3580-3600 MHz?
techUK has no comment on this proposal, but seeks clarification as to what will happen with the license beyond 2018 when it expires.

Question 3: Do you have any specific interest in the 3560-3580 MHz block in preference to any other 20 MHz block within the available 150MHz? If so please give your reasons and any supporting evidence.
As a trade association, techUK has no specific interest in the 3560-3580 MHz block.

Question 4: Do you have any specific interest in acquiring a licence to use frequencies in either or both of the bands to be awarded?
techUK has no interest in acquiring a licence. However, some members believe that the bands are suitable for a range of applications including LTE mobile broadband (including small cells and backhaul), fixed and mobile wireless access and also fixed point to point backhaul connections.

Question 5: How much spectrum would you be interested in acquiring? (What is the minimum and maximum amount of spectrum of interest to you?)
techUK has no interest in acquiring spectrum. However having access to the largest possible block or blocks of spectrum ensures both efficiency and also flexibility in its use.

Allocating spectrum at auction in multiples of 5MHz might allow for more players to potentially bid for spectrum, optimum results both at auction and also in implementation may best be gained with a minimum 20MHz block size. Indeed, a wholesale network may require a much larger block of spectrum consisting of many 20MHz spectrum blocks.

[1] ECC/DEC(11)06 "The harmonised frequency arrangements for mobile/fixed communications networks (MFCN) operating in the bands 3400-3600 MHz and 3600-3800 MHz" http://www.cept.org/ecc/tools-and-services/ecc-public-consultation

Question 6: Which of the two bands would you be interested in: 2.3 GHz, 3.4 GHz or both?
techUK notes that both these frequency bands are internationally identified for mobile broadband applications and the developing CEPT regulatory framework for their mobile broadband use in Europe is consistent with the international basis. Industry has been actively supporting the efforts in ETSI and CEPT to develop the European harmonisation framework for both bands. techUK encourages more to be done to drive European spectrum policy towards full harmonisation.

techUK has received input both directly and via the UK Spectrum Policy Forum that 'Licensed Shared Spectrum' access could be of interest if there was a possibility to secure greater access to spectrum which is particularly relevant for the 2.3 GHz band.)

Question 7: Are there specific parts of the bands you are interested in and if so what are they?
techUK does not hold or offer any specific views on any specific parts of either band,

Question 8: What do you envisage using the spectrum for (e.g. 4G services or other applications)?
techUK believe that the bands are suitable for Mobile, Fixed Communications Networks (MFCN) including LTE mobile broadband, small cells and backhaul. Their use for TD-LTE technology would be particularly interesting.

Question 9: Where would you expect to use the spectrum (Great Britain-wide or in specific geographical areas)?
techUK believes that the release mechanism should have sufficient flexibility to cater for nationwide and/or regional licenses.

Question 10: What types of device would you want to use the spectrum for, and when would they be available?
Devices with both these frequency bands are already available today. It is important to note is that these devices are handheld as well as fixed and mobile CPE for both indoor and outdoor uses.

Also important is that any technical restrictions are minimised to allow for innovative business models and uses of multiple device types, i.e. handsets, tablets, MiFi's, indoor and outdoor CPE, embedded back haul radios, etc.

Question 11: When would you expect to make use of the spectrum?
According to the GSMA latest report on devices certified for use in these 2 bands and also the availability of network equipment from both major and smaller network vendors then an early release of this spectrum would allow industry to build investment models today with a short term goal of deployment.

Question 12: Do you have any comments on the method of award, such as combinatorial clock auction?
techUK would suggest an avoidance of an overly complex auction design, e.g. avoid a CCA approach and instead use an SMRA with spectrum sold in 10MHz or 20MHz blocks, with assignment guaranteed to be contiguous.

techUK also encourages Ofcom to look at new options, such as where a large allocation of the spectrum is awarded to a single operator but with wholesale access obligations.

Ofcom needs to address how guard bands between operators will be accommodated. Ofcom could also facilitate discussions within industry to see whether agreement to synchronise networks and avoid the need for guard bands can be achieved.

Question 13: Do you have any comments on whether a cap on the amount of spectrum that could be acquired through this award would be appropriate?
techUK support the need to include a competition assessment as part of the auction preparation process. Some techUK members favour a cap on spectrum across existing and new bands, in order to promote competition and innovation.

Other techUK members believe that absent any competitive concerns there is no justification for such an approach (and would further assert that since having 2.3/3.4GHz spectrum capacity is not a prerequisite for being a national scale operator, there can be no such competitive concern). Indeed, some techUK members believe that the large amount of spectrum which was made available in the recent award enable efficient competition and thus spectrum caps should not be established in 2.3 GHz and 3.4 GHz.

Question 14: Do you have any preference for spectrum packaging, for example block size?
Some members believe that a separate auction of 2.3 GHz and 3.4 GHz bands would be of value.

In contrast, some members advocate auctioning both bands together as they are substitutes for certain applications (unless this results in significant delay) or alternatively auctioned with an implied link, i.e. industry players should be free to focus on one band to the exclusion of another if that is what they require.

Allocating spectrum at auction in multiples of 5MHz could allow for many more players to potentially bid for spectrum. Yet some members believe that optimum results both at auction and also in implementation may best be gained by ensuring bidders will secure a much larger minimum amount of spectrum rather than hoping they will secure multiple 5 MHz channels to allow for larger aggregate bandwidths.

Question 15: Do you have any views on the non-technical licence conditions discussed in this document, including coverage and roll-out and "use it or lose it"?
techUK does not hold any specific views however would note that historically 'coverage' requirements can be seen as an inhibitor to more innovative uses and investment models, as it presumes both a uniform, large deployment and also a significant investment being available at day one.

Even though 'use it or lose it' stipulations could offer a more directed method of ensuring efficient access and use of awarded spectrum, experience would suggest that very stringent legal definitions would need to be drafted to ensure a watertight and fair approach can be guaranteed and in order to not hinder innovation and risk taking when acquiring spectrum.

Question 16: What do you consider would be the optimal timing for the award?
Some techUK members favour early spectrum release since this provides the greatest economic value to the industry and the UK economy in general whilst others consider that 2015/16 is sooner than needed to meet the projected growth in mobile data given the current roll out of networks in recently released. techUK is aware of 'remediation' requirements within the 2.3 GHz band and the need to allow for re-allocation of the

already used 3.4 GHz frequencies. techUK also believes that harmonisation of those bands in Europe is a critical element and is aware that the ECC Decision on the harmonisation of 2.3 GHz is planned for approval in June 2014.

Question 17: Are there any reasons why these bands should be assigned for low-power use? Would such uses be appropriate even if purchasing a licence for low-power use would cost the same as for high- power use?
techUK has not received any input that would suggest a low power assignment would be of interest.

Question 18: Will you use this spectrum for backhaul? If so, please state the minimum contiguous block you would require.
As noted previously, techUK has no interest in acquiring spectrum. However some members note that there is the potential for use of either of the bands, though it may well be that the 3.4GHz band is better positioned, for backhaul. Applications for backhaul include small-cell, fixed wireless for Rural Broadband last mile connectivity and in both cases demand high bandwidths with high encoding factors and hence the need for large block sizes. We would suggest the minimum contiguous block size to be 20MHz.)