Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: Crown Recognised Spectrum Access in 3400 to 3600 MHz, Consultation on spectrum policy and on terms of new grants and licences

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CONFIDENTIALITY

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Name Signed (if hard copy)

20 November 2009

Nokia[1] and Nokia Siemens Networks (NSN)[2] are pleased with this opportunity to respond to the "Crown Recognised Spectrum Access in 3400 to 3600 MHz, Consultation on spectrum policy and on terms of new grants and licences".

We think that C-band spectrum is an important element to provide wireless broadband high bit rate services with good user experience. It is essential that the future spectrum management of the C-band maximises both the social and economic benefits for the society. The proposal to enable the granting Recognized Spectrum Access (RSA) in the band 3400-3600 MHz is therefore strongly supported.

It is noted that although the band and proposed technical conditions are based on FWA/BWA approach (as in ECC/DEC/(07)02 and 2008/411/EC), the band is also identified as an IMT band for the future. Both BWA and IMT are included in the WAPECS concept but the current WAPECS rules for this band are based on only FWA conditions that are not optimum for spectrum efficiency in a mobile network. Nokia and NSN believe that the best way to achieve both spectrum efficiency and reasonable technical equipment characteristics is to first agree common international channel arrangements (band plans) and after that a set of minimum restrictive equipment parameters to enable technology neutral operation.

The work on international channel arrangements is ongoing in CEPT ECC PT1 and ITU-R WP5D. Nokia and NSN participate and support that work. Commonly agreed international spectrum regulations, including channel arrangements, will provide economies of scale and economical benefits in a form of affordable equipment. In our opinion, before setting the rules for spectrum trading it would be beneficial to wait for this work on C-band channel arrangement to be finalized first. The proposed technical conditions may need to change in the near future, when IMT framework becomes available. This framework will be applicable also to BWA.

In the context of common band plans, we would also support the further consideration of mobile IMT use in this band up to 3800MHz.

Our detailed responses to the consultation questions:

Question 1: do you agree that we should introduce RSA in the 3400 to 3600 MHz?

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[1] **About Nokia**
Nokia is a world leader in mobile communications, driving the growth and sustainability of the broader mobility industry. Nokia connects people to each other and the information that matters to them with easy-to-use and innovative products like mobile phones, devices and solutions for imaging, games, media and businesses. Nokia provides equipment, solutions and services for network operators and corporations.

[2] **About Nokia Siemens Networks**
Nokia Siemens Networks is a leading global enabler of communications services. The company provides a complete, well-balanced product portfolio of mobile and fixed network infrastructure solutions and addresses the growing demand for services with 20,000 service professionals worldwide. Nokia Siemens Networks is one of the largest telecommunications infrastructure companies with operations in 150 countries. The company is headquartered in Espoo, Finland. www.nokiasiemensnetworks.com

We support to make this band available for mobile broadband including IMT. Our concern is timing, as it would be better to wait now for the common 'IMT framework' (including band plan and minimum restrictive parameters) to be available before the band is traded. The work on channel arrangements is ongoing in CEPT ECC PT1 and ITU-R WP5D. Nokia and NSN participate and support that work. As the existing BEMs are based on non-harmonised band plan and were designed under the assumption of FWA, BEMs need to be reviewed in order to maximise the spectrum efficiency.

Question 2: do you agree that we should extend the relevant regulations to allow Crown bodies to be granted and to trade RSA in the 3400 - 3480 MHz and 3500 -3580 MHz blocks? If not, which frequency ranges do you think the RSA regulations should cover and why?
Both bands should be made available for mobile broadband including IMT.

Question 3: do you agree that there should be no minimum trading unit for the RSA grant and the WT licences arising from trade in the band?
Wide spectrum blocks are needed to provide wireless broadband high bit rate services with good user experience. We consider C-band as the only IMT band today that can cope with high carrier bandwidths up to 100MHz.

Question 4: are there specific conditions that you consider should be included in RSA grants and WT licences arising from trading in the band?
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Question 5: do you agree with the proposed in block emissions limit for base stations in the 3500 - 3580 MHz block?
The BEMs in 2008/411/EC is based on non-harmonised band plans, which allow FDD and TDD operations in adjacent channels. The means to fulfil those existing BEMs include internal guard bands, additional filters, lower output power and negotiations between the relevant operators. These all lead to inefficient spectrum use and uncertainty of the value of the spectrum, depending on the adjacent channel operations. This is why Nokia & NSN support the development of common band plan, which can then be the basis for the review of more practical and spectrum efficient BEMs.

Question 6: do you agree with the proposed out of block emissions mask at the 3500 MHz and 3580 MHz boundaries for base stations?
Please see our answer to previous Q5.

Question 7: do you agree that less stringent technical parameters should be permitted if agreed between neighbouring operators?
Yes, surely. This can, however, cause uncertainty of the value of spectrum, if the neighbour is not known e.g. before the auction. Also, bilateral negotiations do not help much, as everybody want to use the standard equipment. Further such bilateral agreements might become obstacles for later spectrum trades.

Question 8: should we align UK Broadband licence conditions for base stations at 3500 MHz and 3580 MHz with those in the RSA grants if and when UK Broadband requests us to do so?
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Question 9: do you agree with the proposed in block emissions limits for terminal stations?
Terminal BEM is required, if FDD and TDD are operated in adjacent blocks. Our preference is to avoid such cases by common band plans.

Question 10: do you agree that the block edge mask should be based on the spectrum emissions mask from ETSI EN 302 623?
Please see our answer to Q9 and Q11.

Question 11: do you agree with our derivation of regulatory out of block limits for terminals and, if so, which of the proposed four alternative regulatory conditions do you think most appropriate?
Terminal BEM is required, if FDD and TDD are operated in adjacent blocks. Our preference is to avoid such cases by common band plans.

Related to the different options considering terminal masks, our preference from terminal implementation point of view is either have no masks or align mask(s) with wide bandwidth mask (like 20MHz) of IMT. In our opinion, it is important to carefully consider IMT masks, especially, related to 20MHz bandwidths when determining BEMs for mobile IMT operation in C-band. For example, the Option 3 mask (as presented in figure 8.5) seems not to be aligned with LTE 20MHz mask.

Question 12: should out of block limits for fixed, nomadic and mobile terminals be different?
All terminals should be treated equally. See also our answer to Q9 and Q11.

Question 13: should we align UK Broadband licence conditions for terminal stations at 3500 MHz and 3580 MHz with those in the RSA grants if and when UK Broadband requests us to do so?
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Question 14: do you agree that the technical limits at 3480 MHz should copy those at 3580 MHz when the use immediately below 3480 MHz is broadband wireless?
Yes.

Question 15: do you agree with the proposed technical limits at 3480 MHz for the scenario where the upper edge of the emergency services block does not change from the current allocation at 3475 MHz?
Yes

Question 16: do you agree with the proposed technical limits at 3480 MHz for the scenario where the upper edge of the emergency services block is moved to 3480 MHz?
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Question 17: do you agree that the technical conditions of the RSA grant at the 3500 MHz and 3580 MHz boundaries are the best option for the boundaries that will appear inside the 3500 - 3580 MHz block if the block is partitioned and traded into several smaller sub-blocks?
Please see our answer to Q5.

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Question 18: do you think that the out of block limits for broadband wireless base stations in Figure 8.2 are sufficient to protect air-to-ground videolink receivers in an adjacent block?

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Question 19: what are your views on the requirements for protection of air-to-ground videolink receivers from interference from broadband wireless terminals?

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Question 20: do you think that an out of block requirement for airborne videolink transmitters of -25 dBm/MHz EIRP is sufficient to protect broadband wireless receivers?

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