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What do you want Ofcom to keep confidential?:

Keep nothing confidential

If you want part of your response kept confidential, which parts?:

Ofcom may publish a response summary:

Yes

I confirm that I have read the declaration:

Yes

Ofcom should only publish this response after the consultation has ended:

You may publish my response on receipt

Additional comments:

Motorola is grateful for the opportunity to further contribute to the process of enhancing the availability of radio spectrum for civil uses for the country.

In this submission references to other material are made. Some of these references are to graphical material that cannot be submitted by web.

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

Motorola believes that there will be demand for spectrum in this band, in particular for BWA and therefore we are supporting to introduce RSA to make this band also available for commercial users.

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?:

We agree that the whole spectrum from 3400-3480 MHz and 3500-3580 MHz should be included in the process. With the support for wider channel bandwidths (e.g. LTE supports up to 20 MHz channels) for BWA systems and also keeping in mind that this band will be one of the most important bands for IMT Advanced systems, which will support at least 40 MHz channel, it will be necessary to make the whole band available. We are also of the opinion that the license from UK Broadband should be untouched and not be included into the RSA regulation.

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?:

As explained in the consultation document the minimum spectrum trading unit (STU) can be defined in terms of geographical coverage or frequency bandwidth. Regarding geographical coverage we agree that defining a minimum STU does not make sense as full flexibility should be given. It should be possible to sub-divide the coverage areas as needed by granted user of the spectrum.

Regarding the minimum STU in terms of frequency, we are of the opinion there should be a minimum STU to define a raster for the systems, which are using this spectrum. Motorola could see a 5 MHz block as appropriate for a minimum STU. This block size would accommodate BWA systems, which are based on a 5 MHz channel raster.

Question 4: are there specific conditions that you consider should be included in RSA grants and WT licences arising from trading in the band?:

No view

Question 5: do you agree with the proposed in block emissions limit for base stations in the 3500 ? 3580 MHz block?:

Motorola agrees that the defined technical conditions should be inline with the EC Decision 2008/411/EC and therefore we are supporting the proposed in block limit.

Question 6: do you agree with the proposed out of block emissions mask at the 3500 MHz and 3580 MHz boundaries for base stations?:

Yes, we agree that the defined out-of block emissions should be in line with the EC Decision and that the breakpoints for the actual mask are based on 20 MHz channels as proposed by OFCOM. However, we would prefer that the out-of-block emissions are defined in terms of transmitted power as defined in the EC Decision and not as proposed by OFCOM in terms of EIRP. Requirements in terms of EIRP are not easily to verify and more complex and cost intensive to measure. Besides, base stations are already being designed according to EC Decision 2008/411/EC block edge mask based on transmit output power for Europe. If UK adopts a mask that is different from the EC decision, that could have some implications on cost since that could imply having to design a product specific to the UK market. Motorola refers readers to EC Decision 2008/411/EC, B) Limits for Out-of-Block Emissions (Block Edge Masks for Central Stations)

Question 7: do you agree that less stringent technical parameters should be permitted if agreed between neighbouring operators?:

Motorola agrees that less stringent technical parameters should apply, if operators agree to do so. In fact, we believe that coordination between operators should be encouraged as one of the most important measures for interference mitigation.

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?:

Having two different licence conditions, would impose additional burden on the equipment design. Therefore, we would prefer to have one single license conditions for base stations in the whole band, which would be as EC Decision 2008/411/EC.

Question 9: do you agree with the proposed in block emissions limits for terminal stations?:

As we support the EC Decision, we also agree with the proposed in block emission limits.

Question 10: do you agree that the block edge mask should be based on the spectrum emissions mask from ETSI EN 302 623?:

Motorola is of the view that the technical conditions should be in line with the parameters defined in the annex of the EC Decision 2008/411/EC. As this decision does not define a block edge mask for terminals, we are of the view that also in the national license conditions of EU member states such technical conditions should not be defined. Otherwise, the national conditions would contradict to the EC Decision.

CEPT SE19 performed studies in the year 2006 (Annex 3 to Doc. SE19(06)74, 37th meeting of SE19, 21-22 November 2006, ERO, Copenhagen, ?FINAL SE19 LIAISON TO JPT BWA ON TECHNICAL CONDITIONS FOR INTRODUCING MOBILE USE IN 3.5 GHz RANGE?), which also studied the terminal to terminal interference issue and concluded that beside the limitation of the output power and the requirement of a minimum ATPC range no additional measures are needed. This is the reason, why no block edge mask for terminals is defined in the EC Decision. The output power limitation and ATPC requirement are part of the European regulation.

To place products on the market, equipment has to comply with the ETSI harmonized standards under article 3.2 of the R&TTE Directive. As mostly BWA systems will be deployed in this band, we therefore would see that for mobile terminals operating in this band will comply with EN 302 623 and nomadic and fixed terminals will comply with EN 302 326-2.

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? :

Motorola agrees with the methodology as used in Annex 8 of this consultation documents to study the interference scenario between terminals. This methodology was already used by CEPT SE42 in their work for the 2.6 GHz band in developing ECC Report 131. Motorola was engaged in this work and we already supported the methodology within SE42.

However, we have to note that equipment does not only have to meet the spectrum mask. To be compliant with the ETSI specifications, equipment has also to fulfil the ACLR requirement. This requirement should be also taken into account in the interference analysis. Further we have another comment regarding Table A8.6 on the UL/DL ratio of TDD equipment. As the 3400-3600 MHz band will be a band to deliver capacity for the users, we see more traffic in the downlink than in the uplink. Access to the internet with browsing and streaming would be the main applications. Therefore a UL/DL ratio of 1:2 to 1:3 would be more realistic for this band.

As already responded to question 10, we are of the view that the compliance with the ETSI EN (option 4) is sufficient and therefore we do not see it necessary to define a block edge mask.

Question 12: should out of block limits for fixed, nomadic and mobile terminals be different?:

As already responded to question 10 and 11, Motorola is of the view that there should be no block edge mask requirement for terminals (independently if mobile, nomadic or fixed terminals) for the 3400-3600 MHz band as this contradicts with the EC Decision.

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?:

Having different licence conditions in different parts of the band for the same type of equipment would impose additional burden for the manufacturer. Therefore, we would encourage OFCOM to align the licence conditions of UK Broadband with the conditions for the 3500-3580 MHz band.

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?:

Motorola agrees that in the case that the use below 3480 MHz is BWA, the license conditions should be the same as at 3580 MHz.

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?:

Motorola has no particular view on the actual shape of the BEM for the EPSS block. However the UK Broadband spectrum should be protected from interference.

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?:

We are not in favour of moving the emergency service block up to the 3480 MHz border. Instead Motorola would be in favour of moving this block towards the 3400 MHz border or even relocate this block to a different frequency band if such a band could be found. However, if this would be the only option, the defined proposed block edge mask should guarantee protection of the spectrum of UK Broadband. Therefore, it should not be more relaxed than the defined levels at the moment.

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?:

As we also see BWA blocks in the 3500-3580 MHz spectrum, we agree with OFCOM that the same technical conditions as at the 3500 and 3580 MHz boundary should be applied. However, also less stringent technical parameters, if agreed between adjacent operators of such networks, should be allowed. Such a relaxation is also indicated in the Annex of EC Decision 2008/411/EC.

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?:

We agree with OFCOM that the BS mask defined in EC Decision is already very stringent and also sufficient to protect receivers in an adjacent band. Therefore, we don't see any reason to define a different BS block edge mask at the border to the

emergency service block. However, as we pointed out, we would prefer to have a BS mask that is defined in terms of transmit output power instead of EIRP in line with 2008/411/EC.

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

Motorola is of the view that the interference from terminals to emergency receivers is not more critical than the BWA TS to TS interference case. As noted in paragraph 8.84 under point 1) emergency receivers are only in use in the case of an emergency and also the receiver density is not that high as in the case of BWA TS. Therefore, we do not see the need for more stringent requirements than the proposals discussed for the 3500 and 3580 MHz boundary.

Motorola is therefore of the opinion that for terminals the same technical requirements as at the 3500 and 3580 MHz border should apply. As we already indicated in our response to question 10, our preference is not to define a block edge mask for BWA terminals (option 4).

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? :

The defined technical requirement to protect BWA base stations and terminals should guarantee the protection of broadband networks from interference. As we already indicated in our response to question 17, the defined technical requirement should not be more relaxed than the current defined level of -25 dBm/MHz EIRP. However, it might be useful to study this issue in more details to see if more stringent requirements are necessary to protect BWA base stations.