

Crown Recognised Spectrum Access in 3400 to 3600 MHz

*The response of Alcatel-Lucent to
Ofcom Spectrum Policy Group*

Spectrum Access in
3400 to 3600MHz

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1. General principles advocated by Alcatel-Lucent for the use of the band 3400-3600 MHz

- **The band 3.4-3.6 GHz should be made available as soon as possible to BWA applications**

There is an increasing demand for high speed data connections in urban areas. The band 3400-3600 MHz represents a unique opportunity to combine the delivery of very high speed connections in hot spots and dedicated areas with the advantages of operated networks in terms of service quality and availability. In addition the Commission Decision 2008/411/EC urges Member States to make this band, or parts of this band, available for BWA as soon as possible.

No limitation should be provided to the possibility for Operators to develop their network using the technology of their choice, and to adapt it in due time with the latest features and technology innovations in order to satisfy market demand.

- **The band 3400 – 3600 MHz provides a unique opportunity to deliver very high capacity broadband services in dedicated areas**

Our view is that all players should be granted licenses covering at least 60 MHz, either in a single block of 60 MHz, or in paired blocks of 2×30 MHz. This would avoid spectrum fragmentation and would minimise the number of frontiers between BWA blocks, thus being compatible with the implementation of large channel bandwidth.

Such block size would allow operators to effectively build systems with very high capacity. Channel widths up to 20 MHz width would become possible and networks could further evolve towards IMT-Advanced implementation.

The existing operator UK Broadband should be allowed, if they wish, to enter into trade with Crown Bodies for additional spectrum, if they wish, in order to benefit from the same opportunities.

- **The regulatory framework should be as flexible as possible**

Such regulatory framework will allow Operators to offer the set of services and applications they consider the most relevant while minimising their CAPEX as much as possible.

We consider that the following will serve these objectives:

- Coordination and synchronisation between operators in adjacent blocks should be encouraged. Such synchronisation / coordination would allow Out-Of-Block levels higher than those resulting from the strict application of the Block Edge Mask. It would minimise the extra-costs resulting from the insertion of RF filters associated with

the compliance to the Block Edge Masks. Such regulatory provisions are allowed by Commission Decision 2008/411/EC.

- The regulatory framework should not restrict the type of services and applications an Operator should be allowed to deliver for the benefit of the final users.
- Operators should have the right to swap, trade and rearrange their bands among them in order to optimise their networks.

○ **Terminal Block Edge Mask should not be imposed**

Our view is that compliance with existing standard(s) for Terminals, namely EN 302 623 for Mobile Terminals, would be sufficient to ensure the co-existence between adjacent blocks.

○ **The rights of the existing BWA Operator should be preserved**

The expected changes in the use of the band 3400 – 3480 / 3500-3580 MHz , especially the introduction of new BWA players in the spectrum immediately adjacent to the spectrum of the BWA operator UK Broadband, and/or changes in the regulations for EPSS use, should not affect the possibilities for UK Broadband to develop its network with regard of what they can actually implement, as for instance the provision of 2× 10 MHz channels in each of the 20 MHz blocks.

We are of the view that imposing the BEM provisions to UK Broadband spectrum edge may restrict this possibility.

Should EPSS be shifted to another part of the spectrum it should be ensured by the regulatory framework that the level of interference to UK Broadband network should not be increased with regard to the current scenario.

2 Response to specific Questions

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

By offering Crown Bodies more flexibility and financial advantages in comparison with conventional spectrum release methods RSA provides a way for faster release of the band 3400-3600 MHz to other applications. Therefore we share Ofcom views that RSA should be introduced in the 3400 to 3600 MHz band, especially for the part of the band which is expected to be transferred to commercial applications.

Question n° 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 granting RSA to the MOD would be an efficient tool to release spectrum for commercial BWA use of the band.

For the part of the spectrum which will be used for EPSS applications in the future, either existing one or a new one if this application is shifted, we have no opinion on the need to grant RSA for this specific piece of spectrum, and on the details of the RSA process in this case.

Question n° 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?

Taking into account the nature of BWA applications and the obligation for UK to apply the provisions of Commission Decision 2008/411/EC, we are of the opinion that allowing too small blocks would not serve the interests of potential BWA Operators. Therefore we respectfully suggest Ofcom to define a minimum trading unit of 10 MHz.

Concerning the administrative trading unit, we support to grant licences rather in wide areas than in small one. Therefore we suggest that licences to BWA Operators be granted nationwide or at least at regional level.

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

No response.

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

In principle we agree with this in block emissions limit. Nevertheless we point out that this limit should be applied with some flexibility in order not to give

penalty to systems equipped with MIMO and/or beam forming features, i.e. these limits should preferably be applied to each antenna and not globally.

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

We also agree in principle, with the following reservations:

- The right should be given to operators in adjacent blocks to coordinate or synchronise their networks in order not to be obliged to implement the out of block emission mask. The regulator should encourage this synchronisation / coordination process and should impose the mask only as last solution when coordination appears not to be possible.
- The technical conditions imposed at the extremities of the band should not result in limitations to the actual implementation capability of UK Broadband.

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

Yes, see response to Question n° 6.

In addition we think that by nature the frequency band 3400 – 3600 MHz provides good opportunity for the deployment of pico or femto cells. In this case we are of the opinion of less stringent masks, possibly based on current standards, should be sufficient to ensure coexistence with neighbouring networks.

Question n° 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 to do so?

In principle yes if it is requested by UK Broadband.

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

In principle we agree. But as for base stations these limits should be considered with some flexibility for items equipped with multi-antenna features.

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

Also there we agree. But masks which may be developed in this band for UMTS and LTE Terminals should also be considered.

More precisely, taking into account the final decision of CEPT not to require any change to WiMAX and LTE UE standards in view of the conclusion of ECC Report 131 in the band 2.5-2.69 GHz we consider that similarly in the band 3.4-3.6 GHz there is no need to develop an Out Of Band emissions mask and that the selectivity provided by the specifications in the standards would be sufficient.

Question n° 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?

Our preference is for Option 4, i.e. just apply the provisions in the relevant standards. This would facilitate future introduction of 20 MHz channels in the band which may be refrained by the definition of a Block Edge Mask implicitly based on narrower channel sizes.

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

Taking into account that fixed terminals are generally equipped with directive antennas their interference potential to neighbouring networks is in principle lesser than the one of mobile or nomadic terminals. Therefore we consider that the same out of block limit may not necessarily be imposed to them. As far as the rule would just be to be compliant with their respective standards this is not contradictory with the principle of technology neutrality.

Question n° 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?

If requested yes, but we do not think there is a rationale for them to do so, at least not at the beginning of the process.

Questions 14 to 20

No response.

