

Urban Wimax Networks PLC response to Ofcom discussion on the award of available spectrum in the 2.6 GHz and 2010MHz bands

28 September, 2007

Closing date for responses 28th September, 2007

About Urban Wimax

Urban Wimax is unique as a WiMAX operator in the UK as it has already moved beyond the trial phase (which was completed in 2006) into volume roll out. It has a growing WiMAX Fixed Wireless Access business operating with unlicensed and 'light touch' regulated spectrum in London which commenced service in Q1 2007. This business addresses the continuing needs for cost effective symmetrical internet access, and related value added services, which remain largely underserved by existing network operators at a time when the Small and Medium Enterprise market has become a **growth engine** of the UK information economy, and collectively one of its biggest employers.

Urban Wimax has plans to extend its Fixed Wireless Access business throughout London, before embarking on a roll out programme in up to **20 major SME conurbations** throughout the UK. As an early adopter of WiMAX technology it has build up considerable intellectual property as an operator of WiMAX based service networks. It is also actively seeking to replicate its business in up to **10 countries worldwide** providing a significant export opportunity for itself and its partners, many of whom are major employers in the UK.

At the same time as Urban Wimax went into commercial service in the UK it started executing its plans to **trial 802.16e technology during 2007** ahead of the anticipated 2.6GHz award and developed its plan to facilitate the construction of a Disruptive Bid Consortium taking in the entire market facing opportunity for consumer, business and multimedia customers, as well as the potential needs of the Public Sector, existing PMSE and Homeland Defence and Security users.

Urban Wimax is the only company that has publicly signalled its intention to bid in the forthcoming award in the 2.6GHz, and critically **co-founded a 4G Wave Two Ecosystem** cross industry/cross market collaboration with a variety of leading companies in the supply value chain which it launched on the 27th July 2007 (5 years to the day from the opening of the 2012 Olympic Games) to prove that WiMAX 802.16e is deliverable to avoid the mistakes of the 3G Auction.

Provided the user centric trials, which are due to commence on the 8th October 2007, are conclusive; and assuming there is continued enthusiasm from the supply chain, and business and market interest from potential bidding partners then Urban Wimax is committed to forming a consortium **to bid for in excess of 90MHz** spectrum leading to immediate roll out of networks(s) and capabilities to commence in 2008.

The strategic intent of the supply chain collaboration is to promote the WiMAX cause and overcome concerns from all industry stakeholders, including potential competitor bidders, that WiMAX is viable for the broader benefits of both UK industry and consumers.

The strategic intent of the disruptive bid consortium is to re-establish the UK as a high bandwidth/high value 21st century Information Economy by delivering a **Mobile Internet Superhighway** to be showcased on the world stage that is the 2012 Olympic Games, and meet the needs and expectations of those entering the workplace who have grown up with a fixed broadband internet access experience set by ADSL and Cable.

Introduction to Our Response

Urban Wimax welcomes this opportunity to contribute to the discussion on the award of spectrum in the 2.6GHz band and to reply to the specific questions set out in the discussion document. We have chosen not to comment on the 2010MHz band as this is of secondary interest to us at this time, but this should not be interpreted as not having a business interest in 2010MHz.

Urban WiMAX supports OFCOM's liberalised spectrum licensing approach, and is therefore supportive of technology and application neutrality so that UK businesses and its citizens can benefit from what the industry can bring to market to give them real choice and a better user experience at an affordable price.

Urban Wimax **urges** Ofcom to **raise the cap beyond 90MHz** to accommodate its consortium business plan which is to roll out two networks in the short term using a combination of FDD and TDD spectrum for the reasons as summarised below:

- We acknowledge the theoretical view expressed by some parties that a national TDD network can be built with 30MHz;
- However our advice is that a full national network comprising a national macro layer plus appropriate access layer (our preferred economic approach to interference at this time) requires at least 60MHz;
- Additionally given the material impact on vendor development of the Sprint led investment in WiMAX we wish to preserve our ability to utilise 15Mhz per channel plus 10MHz for in-building coverage;
- The above approach also allows us the flexibility to deploy a combination of TDD and FDD technology using either LTE or WiMAX and any hybrid during the life of the licenses – subject to change of use.

By way of explanation the initial use of the two networks in the short term is summarised below:

- We wish to provide both the **certainty and security of service** for existing and potential users in the Public Sector, PMSE and Homeland Defence and Security market place by deploying a network to deliver a range of temporary, transitional and replacement services at appropriate commercial rates
- We intend to **rapidly deploy a mass** market network for normal commercial broadband quality multi-media services to business and consumers commensurate with the best in class services that will becoming available throughout the rest of the world, and putting the UK economy back at the forefront of the mobile internet pending the arrival of LTE;
- We propose to leave it to customers and the competitive market place to decide whether both networks continue or are recombined to produce an unmatched **Mobile Internet Superhighway** to rival any country in the world post 2012 as LTE becomes commercially viable.

Before dealing with the specific questions identified by Ofcom we would like to confirm that Urban WiMAX supports the awards in this band to take place **as soon as reasonably practical** and our comments reflect this view.

The specific answers to the questions below are the **opinions of Urban Wimax alone**, and in no way are intended to represent those of any other company which has already, or may become associated with the supply chain collaboration or the consortium bid, in the future.

We have also set out some comments in relation to related matters that we consider to be both relevant and pertinent to this discussion at Appendix 1.

Specific Response to Questions Raised in the Discussion Document

Question 1: Do stakeholders agree with Ofcom's assessment of the blocking effect and of its implications for spectrum packaging?

Urban Wimax **appreciates** Ofcom's studies and published research into the effects of blocking and its implications for spectrum packaging. Our position is that those bidders contemplating using the spectrum for FDD based technologies have **more than sufficient information** to adjust their plans from the existing work completed by Ofcom, and the extensive experience and body of knowledge at their disposal from the years of FDD deployments on a global basis.

Urban Wimax favours resolution to instances of blocking, should they arise, to be based on **commercially negotiated solutions** in the first instance, as these are likely to be more effective **given equality of motivation for the neighbours** involved, to the alternative of compliance investigations and regulatory intervention.

Our **principle argument** in this respect is that with the impact on the broadband wireless market caused by the failings of 3G, we anticipate that the successful bidders will all deploy **multimedia broadband applications**; and so the probability is that regardless of technology selection all parties will want to minimise FDD interference on TDD and vice versa, leaving customers with real choice and a role in deciding who ultimately wins in the market place for the first time.

Urban Wimax does however recognise that not all successful bidders will necessarily have the same motivation to grow the mobile wireless market following the award, and in any event MNOs have the market advantage of having an existing business and customers which that entails. In particular we note that some, if not all MNOs **may not seek to use the spectrum** in the short or immediate term, and indeed with the proliferation of network sharing deals we have **no evidence that incumbent MNOs have any need for additional 3G capacity at this time**.

As a new entrant, Urban Wimax can foresee circumstances arising where an incumbent FDD operator is content to endure TDD blocking in the 2.6GHz bands, as the cost for blocking TDD terminals in order to limit the success of a TDD based competitive new entrants. Urban Wimax would welcome any reassurance that Ofcom may give regarding **immediate priority to resolve any such disputes between neighbouring service providers**. Urban Wimax will be looking for OFCOM to make clear its role in resolving disputes of this nature in its publications later this year.

Urban Wimax concludes that OFCOM should **not delay the release of spectrum** in order to conduct further theoretical studies independent of their quality since there is not a sufficient body of practical operational experience anywhere in the world with TDD to materially back up any conclusions arising.

Furthermore we consider such requirements on behalf of other potential bidders and stakeholders to be **without foundation** as they all have had at their disposal both the technical and financial resources to have conducted such investigations for themselves. We can find **no precedent for such action**, as the industry has historically introduced new technology in wireless over many decades of innovation despite uncertainty, and the UK has a first class track record with regard to avoiding interference issues through engineering excellence.

Question 2: Do stakeholders agree with Ofcom's analysis of interference conditions that are relevant to the use of generic lots?

Urban Wimax supports the work that OFCOM has undertaken in its analysis of interference conditions in relation to the use of generic lots for the purpose of the first (clock) stage and we note that:

- The most significant cost of interference during initial deployment (reduced cell size even with the use of filters) can be adjusted for known activities and plans of neighbours;
- The potential costs to escalate may severely undermine the business plan if additional interference arises post build-out due to change of use or interference turns out to be greater than expected;
- The work done on filtering to date is commendable, however at this time we are not aware of any filter having been designed and tested with the required performance which therefore remains theoretical;
- No further work in this area of a technical or practical nature will materially reduce the risks for any bidder in the near term.

As there is not a significant body of evidence and experience available from live TDD deployments, and this will not change in the foreseeable future, we conclude that there is **no necessity for the Auction to be delayed** as the industry is well used to dealing with such technical uncertainties.

Question 3: Do stakeholders agree with Ofcom's updated proposals for technical conditions or have views on the possibility of:

- extending out-of-block masks out to an offset of +20MHz from assigned blocks;
- placing additional restrictions on the use of restricted blocks between the FDD uplink and TDD; or
- a reduction in mobile station in-band power to 18dBm/MHz EIRP?

Urban Wimax position is that, given that the spectrum is tradeable and technology neutral, that OFCOM have done the **necessary and sufficient** work in this area in setting out a range of plausible options that deals with the technical aspects of neighbourliness.

Having consulted with the supply industry we consider such interventions by Ofcom to be unnecessary today and would not wish to see such proposals carried forwards at this time for three reasons:

- They assume that there are no economic mitigation options available to service providers as a result of the assumed international nature of end-user device markets;
- They might provide an unnecessary additional burden on bidders contemplating TDD based business models arising from the lack of a viable body of TDD evidence and experience;
- The industry is well placed to drive and resolve these issues, on the assumption that the band plan and technology neutrality approach opted by Ofcom will be part of a harmonised approach to 2.6GHz which will provide adequate industrial scale.

The critical issue is that Ofcom provide **adequate provision** for an undefined future of wide band technologies covering:

- TDD and FDD technologies in their various forms as currently envisaged including for example WIMAX and WIMAX and LTE;

- Potential change of use of the awarded spectrum post Auction, without unnecessarily arduous and prolonged additional consultations which could impede innovation and the efficient use of spectrum, and act as an impediment to secondary spectrum trading.

Our position is that all bidders will be **deploying new networks** to utilise this spectrum and our assessment based observations are that there will be:

- An equivalent potential incremental cost to each bidder proportionate to the scale of their service business plan (and deployment) for the same coverage and quality of service/user experience;
- Bidders have broadly the same mitigation options e.g. Technical architectures to accommodate in-building coverage buildings, purchase of additional spectrum.

Urban Wimax's position is that the supply industry is better placed than Ofcom to resolve these technical issues, and in the longer term operators need to learn to co-operate with competitors for industry to make efficient use of spectrum, and for operators to benefit from global best practice design and economic scale.

We believe that such issues would be best addressed by placing **an obligation** in all licences requiring licence holders to resolve issues by agreeing reasonable interference limits, backed up by Ofcom's dispute resolution powers.

In conclusion Urban Wimax considers that industry is better placed to deal with these issues than Ofcom, and we **urge** Ofcom not to undertake any changes in these areas nor impose any additional restrictions. Urban Wimax has factored such issues into its plan which is why it is seeking for the cap to be raised beyond 90MHz as set out earlier in this response, an option available to all potential bidders.

Question 4: Do stakeholders agree with the proposed changes to the auction design set out in the December 2006 consultation?

Urban Wimax supports the changes that Ofcom has proposed in the latest (August) document.

Generally we find that those companies with whom we are working from within the telecoms, technology and equipment value chain have a robust and common understanding of the processes. However we have found that people from other organisations, which may be involved in our Disruptive Bid Consortium, have yet to reach the same interpretation of the process as we have. Admittedly some of these parties may be less familiar with spectrum Auctions in general than others.

We would **urge** Ofcom to revisit the description to provide more **clarity and precision** so that the process is better understood by companies from across the Communications, Media, and Broadcast and Internet market place on a more inclusive basis.

We **invite** Ofcom to consider running another workshop focussed exclusively on the auction design, should there be sufficient market demand from potential bidders and other interested parties.

+++++ **END OF DISCUSSION RESPONSE** +++++
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Appendix 1: Supplementary Observations Considered Relevant

3.5GHz - UK Broadband

In line with Urban WiMAX support of OFCOM's liberalised spectrum licensing approach and technology and application neutrality we wish to see prior awards brought into line with current policy as quickly as possible, so that UK citizens can benefit from what the industry can bring to market to give them real choice and a better user experience at an affordable price.

In relation to the recent consultation with regard to UK Broadband, Urban Wimax fully supports and endorses the proposals for the amendments as set out in its consultation:

- Permitting applications neutrality, technology neutrality having been dealt with in the original award, albeit that WIMAX technology was perhaps not mature enough at the time;
- We are also supportive of the increase of permitted in-band EIRP provided that C Band satellite services are not disadvantaged through increased interference;
- Regarding the timing of the licence variation, Urban WiMAX supports a quick resolution to enable 4G BWA services to be rolled-out in the UK, which will augment any future BWA services in the 2.6GHz band.

900 and 1800 MHz

On the basis of our initial assessment of the recently publication for 900 and 1800 MHz we fully support the recommendations and conclusions reached by Ofcom on the following basis:

- It creates certainty and a timely resolution for those who have invested heavily in 3G, many of whom are contemplating their future investments and those by their suppliers in a variety of 4G technologies;
- It fits within our own longer term business model and the interests of some of our potential partners to secure access to this spectrum whether by participation in the subsequent award or through secondary spectrum trading;
- By allowing the incumbents to stay on the same frequency band we are more likely see the best of their chosen technologies delivering multimedia services more quickly than might otherwise be the case, whilst providing continuity of services for existing customers;
- It accommodates the redistribution of spectrum amongst incumbent operators on a practical basis, whilst meeting the potential market demand from other interested parties and new entrants.

+++++ **END OF SUBMISSION** +++++