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Attention: Senior Telecommunications Engineer (R11)

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Dear Sir

**“Providing Radio Spectrum for Broadband Wireless Access: Third Consultation Paper”**

Alcatel-Lucent appreciates this opportunity to respond to OFTA's consultation on “Providing Radio Spectrum for Broadband Wireless Access” and we are pleased to offer our comments and views.

Here below is the response to the questions:

*Question (1): Do you agree that the 2.3 GHz band be allocated for BWA services? If agreed, when the spectrum should be made available?*

**Alcatel-Lucent Response:**

Yes. The 2.3GHz band has very good propagation characteristics for mobile applications, and for this reason also is being considered in many countries for WiMAX in particular as a key BWA/WiMAX preferred band.

In Mainland China, this band is allocated for TDD application without explicitly limiting to TD-SCDMA, which leaves room for further decision on which technology to be used.

The market need already exists. Alcatel-Lucent is deploying or trialing WiMAX system on this band for early deployment. We believe that it is critical that the TA recognizes the market's needs and makes 2.3GHz band available for BWA at the earliest possible opportunity.

*Question (2): Do you agree that the opening up of the 2.5 GHz band for BWA should be considered at a later stage? If agreed, when and how much of the bandwidth should be made available to the market?*

**Alcatel-Lucent Response:**

Alcatel-Lucent is actively participating in ITU-R work and fully aware of the on-going discussions on the band plan for 2.5GHz. We also share the same view as other key WiMAX Forum members that the 2500 – 2690 MHz is a key global band for mobile WiMAX. There are many BWA activities in this band in North and South America, as well as in some parts of Asia and Europe.

Alcatel-Lucent provides solutions for both 2.3 and 2.5 GHz bands. To have 2.5 GHz later than 2.3 GHz is dependent on the local circumstances, we have no strong opinion on the issue.

*Question (3): Do you have any preferred frequency bands for BWA services? How much spectrum do you need initially and for future expansion (number of blocks, spectrum width of each block, in which bands) and when the spectrum should be made available to the market?*

**Alcatel-Lucent Response:**

There are several bands specified for WiMAX solutions. Besides 2.3 and 2.5GHz bands, 3.5GHz and 700MHz are also generally acknowledged as “core bands” for WiMAX.

Please refer to our response in Question (5) for spectrum bandwidth.

Alcatel-Lucent, as the global WiMAX solution leader, has products capable of using four core bands 2.3/2.5/3.5GHz/700MHz and are compliant with standard “IEEE802.16e-2005” (also called “16e”). The products are fully committed to the profiles under development by the WiMAX Forum and will be generally available with mass production to support broadband fixed, portable and mobile applications.

*Question (4): Do you agree with the proposed frequency allocation plan given in Annex 1? If not, what is your proposal?*

**Alcatel-Lucent Response:**

Agree.

*Question (5): Do you agree that a BWA licensee should be assigned no more than six 5 MHz blocks of the BWA spectrum?*

**Alcatel-Lucent Response:**

Alcatel-Lucent believes that any band supporting Broadband Wireless Access should support the full set of user access applications, and that there is no reason to distinguish, from a regulatory point-of-view, Fixed Wireless Applications from Mobile Applications.

The availability of adequate spectrum is critical for operators/ISPs to provide true broadband connections for supporting a full range of market expectations. Alcatel-Lucent believes that, for high traffic areas, 30MHz of spectrum per operator is appropriate. While for lower traffic areas, 20MHz per operator may be sufficient. In addition, the number of Operators in a region needs to be considered to ensure fair competition.

*Question (6): If the result of the coordination with the Mainland authorities confirms that 85 MHz bandwidth in the 2.3 GHz band can be made available, do you agree that the TA should make available all the 85 MHz bandwidth for BWA service? If not, what is your proposal with reasons?*

**Alcatel-Lucent Response:**

Yes. We support that the TA should make available all the 85MHz bandwidth for BWA service.

*Question (7): Do you have any views on the frequency allocation plan for the 2.5 GHz band?*

**Alcatel-Lucent Response:**

We don't have any specific view on the frequency allocation plan.

*Question (8): Do you have any comment on the TA's preliminary view that no restrictions should be imposed on the types of applications and services that may be provided using the BWA spectrum?*

**Alcatel-Lucent Response:**

Alcatel-Lucent notes the historical trend towards convergence of information services. As a consequence the line between fixed and mobile services continues to blur. We believe that Broadband Wireless Access licensing should

allow for Fixed, Nomadic, Mobile and Backhaul applications. WiMAX technology is well suited for all of these different market segments.

WiMAX products will often fall into more than one of these application categories and thus having license constraints on type of application will unnecessarily limit operators' ability to address market demand.

*Question (9): Do you have any further comments on the preliminary view of the TA that he should not prescribe any particular standard or technology for the BWA deployment?*

**Alcatel-Lucent Response:**

Alcatel-Lucent agrees that the band should be made available to BWA services on a "technology neutral" basis. However, we also note that countries worldwide are currently providing licenses to next generation BWA (Broadband Wireless Access) networks, with WiMAX as the technology of choice.

WiMAX BWA technology is based on IEEE 802.16 and ETSI HiperMAN wireless MAN specifications. From these standards, the WiMAX Forum has identified specific profiles that support interoperability. WiMAX technology is IP-based and reflects the technology trend towards all IP-based networks.

Taking into account the need to support asymmetrical applications, BWA systems should be generally, but not compulsorily, based on TDD technology.

*Question (10): Do you have any further comments on the TA's preliminary view that assignment of the frequency blocks for BWA services should be made on a territory-wide basis?*

**Alcatel-Lucent Response:**

Alcatel-Lucent shares the view of assigning the frequency blocks for BWA services on territory-wide basis for the reason of economies of scales and efficient, robust business models.

*Question (11): Do you have any further comments on the TA's preliminary view that BWA licensees will be required, under the licence, to roll out the services within 24 months from the date when the licence is issued and that performance bond will also be required?*

**Alcatel-Lucent Response:**

Alcatel-Lucent recommends that BWA operators should roll out the services as soon as possible after the licenses are awarded since the market need already exists and WiMAX solution is available now.

*Question (12): Do you agree with the proposed frequency assignment method as stated above?*

**Alcatel-Lucent Response:**

Alcatel-Lucent supports the hybrid selection to assign the BWA spectrum.

*Question (13): Do you have any further comments on the TA's preliminary view that that an up-front lump sum payment basis should be adopted for SUF, the amount of which will be determined through an open auction?*

**Alcatel-Lucent Response:**

No Comment.

*Question (14): Do you agree that BWA licensees should not be subject to an ex ante ONA requirement?*

**Alcatel-Lucent Response:**

No comment.

*Question (15): Do you consider that FMC services should be allocated with new number ranges?*

**Alcatel-Lucent Response:**

No Comment.

*Question (16): Do you agree that numbers with prefixes “2” and “3” should be allocated to fixed/“limited mobility” BWA services while numbers with prefixes “6” and “9” should be allocated to “full mobility” BWA services?*

**Alcatel-Lucent Response:**

No Comment.

*Question (17): Do you agree that BWA licensees should be subject to the requirement of facilitating both ONP and MNP, including the FMNP to be introduced in the future?*

**Alcatel-Lucent Response:**

BWA is the broadband access plane which shall be considered independently from numbering plan and number portability issue which are considered to be application plane related.

*Question (18): Do you agree that BWA licensees should be subject to the requirement of denial of service to suspected stolen apparatus?*

**Alcatel-Lucent Response:**

Yes.

*Question (19): Do you agree with the proposed approach as stated in paragraph 58 to resolve adjacent channel interference issues?*

**Alcatel-Lucent Response:**

Alcatel-Lucent agrees that BWA operators should coordinate among themselves to resolve the adjacent channel interference issues and that the compliance with Emission Masks will be enforced only if the interference issue cannot be resolved through the coordination among the operators concerned.

*Question (20): Do you agree with the proposed guard bands for the 2.3 GHz band? Do you agree with the arrangement for the spectrum holder at the lower edge of 2.3 GHz band to use the spectrum 2.300 – 2.305 GHz as stated in paragraph 60?*

**Alcatel-Lucent Response:**

We don't have specific comment on “guard bands”.

Finally, as a general comment, we understand that it is OFTA's intention to limit the consultation to a discussion of IEEE 802.16(e) as a BWA technology. However, we are aware that the ITU recognizes the IMT-2000 technologies as BWA technologies as well, as indicated in Recommendation ITU-R M.1801 "Radio interface standards for broadband wireless access systems, including mobile and nomadic applications, in the mobile service operating below 6 GHz". If OFTA issues the licenses for BWA on a technology-neutral basis, it would seem to follow that the IMT-2000 technologies could be used as well.

Please do feel free to contact me if you require any clarification on the material described here. We will also be happy to be further assistance.

Best regards,

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