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Re: Ericsson's Response to Consultation on "Providing Radio Spectrum for Broadband Wireless Access Services – 3rd Consultation Paper"

1. Introduction

Ericsson appreciates this opportunity to provide comments to the Office of the Telecommunication Authority (OFTA) with regard to its consultation paper entitled "Providing Radio Spectrum for Broadband Wireless Access Services – 3rd Consultation Paper" issued on 11th May 2007.

This paper outlines Ericsson's principal views on this consultation which addresses the Spectrum Availability issues to support the continuation of successful Mobile and Wireless Broadband services in Hong Kong.

2. Ericsson's views on spectrum usage in the range 2.3 - 2.4 GHz and 2.5 – 2.69 GHz

With the growth of mobile broadband services accelerating globally as well as locally, and specifically the recent and significant launches of IMT-2000/HSPA (high speed packet access) services by the mobile broadband operators in Hong Kong, the success of these deployments suggest that the availability of the extension spectrum for allocations to ultra high speed mobile broadband networks will provide crucial opportunities for the consumers, businesses and the Government in the future.

Today's communities understand the potential of communication and always want to be connected. Information and communication technologies are vital in helping economies to accelerate socio-economic development – as recognized by the United Nations, national governments and major organizations alike.

- Earlier this year, the 3G WCDMA standard passed the 100 million subscriber mark, and some 110 operators in over 50 countries have launched commercial HSPA services.
- HSPA performance is equivalent and in many cases surpasses that of fixed broadband connections based on copper access (such as ADSL), with the additional benefit of mobility. HSPA is an all-IP / Full Data enabled Wireless Broadband Access technology designed to deliver mobile broadband services such as, e-commerce, e-security, e-medicine/health, e-government, e-education, as well as critical public safety applications.

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- 3G/HSPA devices are already widely available and economies of scale are already becoming apparent. The latest figures from the GSM Suppliers' Association (April 2007) indicate that there are more than 250 HSPA-enabled devices on the market.
- 3G/HSPA already offers worldwide roaming and economies of scale. The current subscriber bases of all operators who have launched HSPA services number well over 500 million globally. Operators can easily reach this customer base in order to offer attractive HSPA services.
- In Europe today several operators have launched a new business model offering a flat-rate EURO20 per month @ 3.6 Mbps 3G/HSPA service. This has triggered an enormous traffic increase in a very short time in those networks.
- Our forecast indicates that during the four years 2008-2011 there will be more than 1 billion HSPA devices sold in the world

Ericsson generally views the identification of the band 2.3 – 2.4 GHz for providing the capacity needs of IMT Advanced and the use of this band should not be limited to BWA services. This band is near the bands already identified for IMT-2000 hence facilitate the use of same antenna as in the band 2.5 – 2.69 GHz and would present similar propagation conditions.

The 2.5 - 2.69 GHz frequency band is globally harmonized and known as the Extension band after being identified for IMT-2000 by ITU. This band is intended to cater for increased traffic capacity needs and is very critical for the current 3G operators in Hong Kong to further evolve its affordable mobile and wireless broadband services with full mobility. By licensing the 2.5 - 2.69 GHz frequency band with the paired band 2 x 70 MHz (FDD) frequency arrangement, harmonization is achieved in line with ITU-R and CITELE Recommendations and a Decision in CEPT.

3. Response to specific issues

OFTA 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?

Ericsson generally views the identification of the band 2.3 – 2.4 GHz for providing the capacity needs of IMT Advanced and the use of this band should not be limited to BWA services with no or limited mobility. The band is near the bands already identified for IMT-2000 which facilitate the use of same antenna as in the band 2.5 – 2.69 GHz and would present similar propagation conditions.

Furthermore, Ericsson recommends the Government to coordinate the spectrum allocation so as to prevent interference and cross border problems that might arise as well as to enable roaming possibilities with other countries.

OFTA 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?

Ericsson suggests that the Government should closely monitor the mobile broadband market development of 3G networks in Hong Kong and adjust the spectrum plan according to

capacity needs of these networks to support further enhancements of mobile broadband and various multimedia services including mobile broadcast and multicast.

The 2.5GHz band should not be limited to BWA services with no or limited mobility. If the usage of this band is limited to BWA services it would constitute a significant barrier for existing mobile broadband operators in Hong Kong to offer improved broadband services at a lower cost in the future.

Please refer to our response to Question (7) below concerning our suggested spectrum allocation plan for the 2.5GHz.

OFTA 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?

Mobile and wireless broadband services are being deployed in the 2.1 GHz band today in Hong Kong. For near or medium term capacity expansion needs of these services, the preferred frequency should be in the 2.5GHz band.

There should not be any spectrum allocation plan for BWA with no or limited support for mobility.

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

Same answer as Question (1). The Government is encouraged to maintain spectrum allocation alignment with the international decisions and recommendations towards global spectrum harmonization.

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

Same answer as Question (1). The Government is encouraged to maintain spectrum allocation alignment with the international decisions and recommendations towards global spectrum harmonization.

OFTA 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?

Same answer as Question (1). The Government is encouraged to maintain spectrum allocation alignment with the international decisions and recommendations towards global spectrum harmonization.

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

In order to guarantee best possible end-user affordability for wireless broadband connectivity, Ericsson recommends applying a technology neutral standpoint to ensure a competitive business environment. This means optimizing the spectrum utilization in an environment where multiple operators can compete for a territory wide operation.

For wide area coverage of Broadband Wireless Access spectrum should be allocated as frequency division duplex (FDD) in all areas where it is possible to pair spectrum. Hence, time division duplex (TDD) should be allocated to spectrum that is not possible to pair.

The primary reason for this recommendation is that cost per square kilometer and cost per added mobile and wireless broadband subscriber is kept at minimum.

Furthermore, Ericsson recommends allocating spectrum according to guidelines and standards identified by ITU as IMT-2000 standards, since these standards will safeguard best possible economy of scale, both in terms of consumer electronics as well as network infrastructure.

Hence, the recommended spectrum allocation for the 2.5 to 2.69 GHz band is:

- 2500 to 2570 MHz – uplink for IMT 2000 FDD technology
- 2570 to 2575 MHz – guard band
- 2575 to 2615 MHz – allocated for TDD technology, or additional downlink FDD
- 2615 to 2620 MHz – guard band
- 2620 to 2690 MHz – down link for IMT 2000 FDD technology

The optimum size of each allocated spectrum is a trade off between number of competing operators and the efficiency gains from a less fragmented spectrum. For mobile and wireless broadband applications allocating 10 MHz or more per operator is recommended.

Ericsson believes 3G networks based on well established WCDMA (Wideband Code Division Multiple Access), HSPA (High Speed Packet Access) and evolved technologies towards LTE (Long Term Evolution) offer the best way forward for mobile broadband services in terms of global acceptance, economies of scale and spectrum efficiency.

Today, HSPA is the undisputed leader in mobile broadband services, as it provides:

- An ecosystem of unrivalled breadth and depth, covering both traditional mobile terminals and personal consumer devices such as notebooks, ultra mobile PCs, cameras, portable game consoles and music players
- Unmatched economies of scale that benefit all players in the ecosystem, which are uniquely available to a technology that is part of the 3GPP family of standards, currently serving over two billion subscribers
- Ever-improving performance, with commercially-proven transmission bit-rates of up to 14Mbps today and up to 42Mbps in the near future
- highly economic urban and rural coverage, with up to 200km cell range and measured speeds in excess of 2Mbps at the cell border
- A clearly defined and easily adopted evolution path.

OFTA Question (8): Do you have any comments 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?

Ericsson has no specific comment on this issue.

OFTA 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?

Ericsson supports TA's technology neutral position.

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

Ericsson supports the view that any mobile broadband services should be made on a territory-wide basis and obligation should be in place for the licensees to ensure decent coverage in Hong Kong.

OFTA Question (11-20)

Ericsson has no specific comment on these issues.

4. Summary and conclusion

Spectrum licensing is undoubtedly a key issue with far-reaching consequences. To get the full benefits for society out of broadband, technologies must have economies of scale to enable adoption of the mass market that makes broadband services affordable for everyone. In view of this, the Government should maintain spectrum allocation alignment with the international decisions and recommendations towards global spectrum harmonization.

Ericsson believes GSM, IMT 2000 and IMT Advanced technologies will be the main technologies for many years to come. Already today 2.4 Billion subscribers are served by the GSM/IMT-2000 ecosystem, proving that international standards, harmonized technology and economies of scale are the best drivers of user value. 3G/WCDMA/HSPA has gained the position as the leading mobile broadband technology by introducing commercially available speeds comparable to ADSL and by the exponential growth of commercially available networks and subscribers.

Ericsson would like to again thank OFTA for the opportunity to comment on this consultation and we believe that further development on Mobile and Broadband services will benefit consumers and businesses in Hong Kong.

Sincerely,



Michael Lee,

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