

July 11<sup>th</sup>, 2012

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Dear Sir / Madam,

**Arrangements for the Frequency Spectrum in the 1.9 – 2.2 GHz Band upon Expiry of the Existing Frequency Assignments for 3G Mobile Services**

In response to OFCA's consultation paper "Arrangement Arrangements for the Frequency Spectrum in the 1.9 – 2.2 GHz Band upon Expiry of the Existing Frequency Assignments for 3G Mobile Services" issued on 30 March 2012. Nokia Siemens Networks submits this response to present views from international best practice, productive efficiency and spectrum utilization, competition and consumer interest point of view generally established in global market.

Thank you for your attention.

Yours faithfully,

For and on behalf of  
Nokia Siemens Networks H.K. Ltd.

A handwritten signature in black ink, appearing to read "Paul Chan".



Paul Chan  
NWS Solution Manager  
CO AME China

## 1 Introduction

- 1.1 This paper presents Nokia Siemens Network's view on OFCA's consultation paper issued on 30 March 2012 on "Arrangements for the Frequency Spectrum in the 1.9 – 2.2 GHz Band upon Expiry of the Existing Frequency Assignments for 3G Mobile Services". This paper aims to present views from international best practice, productive efficiency and spectrum utilization, competition and consumer interest point of view generally established in global market.

## 2 International best Practice

- 2.1 In many markets UMTS licence at 2100MHz band that were granted 11-12 years ago are coming to the end of their term and spectrum renewal. Many of these incumbents already operate LTE in 2600MHz band in addition to deploy UMTS in the 900MHz band in order to increase capacity and **make the best use** of the spectrum. Most regulators are obliged to agree a methodology for renewal that extract a return for society and ensures that **economic benefit** is generated. Recognising that a simple re-auction will disrupt investment of incumbents and may cause disruption of end user services.
- 2.2 Incumbent faced with the expiry of their licence and spectrum refarming usually go through a negotiation process with the regulator. While it is rare for regulators to auction spectrum from expiring licences, and in most cases licences are renewed without an auction at reasonable cost.
- 2.3 A number of countries have established a presumption or high expectation of renewal to spectrum licences. A presumption of renewal means that licensees are allowed to renew their licences except under certain defined circumstances which are expected to arise relatively rarely. A presumption of renewal can make sense where the mobile service, clearly represents the best use of a particular spectrum band and where the ongoing continuity of communications is important given the particular service's role as part of the economy's key infrastructure. A presumption of renewal also gives operators greater certainty and encourages them to put longer term investment.
- 2.4 The World Bank has noted the importance of licence renewal for investment:

*"Providing details for license renewal or reissue is an important guarantee for regulatory certainty, which is a prerequisite for attracting potential investors entering the market of developing and emerging economies... For the sake of regulatory certainty, the discretion offered to the licensing body should be curtailed by conditions set in the regulatory framework or in the license itself, and be subject to checks and balances. The conditions requested for renewal and the methods for specifying them become minimum guarantees to ease investors concerns over arbitrary refusal to renew. They give a positive signal for operators to continue to invest in their networks and to fulfill their obligations, at least until the end of the license term. Prospects for license renewal also offer needed assurance to operators to engage long-term financing for their network."*

- 2.5 In early 2012, the Australian government decided to reissue the licences to incumbent licence holders with a renewed price of the spectrum. The reissue of licences will provide certainty about the continuity and operation of mobile and wireless communication networks. Regulator has careful evaluation of how the public interest is served by allowing renewal of current licences, as well as identifying appropriate pricing for renewed spectrum. The renewal process will ensure an appropriate financial return to the taxpayer, while providing certainty to industry and consumers.

### **3 Productive Efficiency and Spectrum utilization**

- 3.1 In past 2-3 years, incumbents have put a considerable amount of investment to make the best use of the spectrum. Network equipment was upgraded to support GSM, UMTS and LTE technology in 900MHz, 1800MHz and 2100MHz band. Technically, this is done by Software defined radio (SDR) technology emerged in past 2-3 years. With the SDR technology, operator can deploy GSM/WCDMA/LTE technologies on the same base station and thus improve the productivity efficiency in Mobile Broad Band (MBB) service access and in a way that maximise economic. Such efficiency benefits consumers with better user service at lower cost. Uncertainty of license renewal will hurt the investment.
- 3.2 In addition to the upgrade of hardware platforms, operators also invested in software to further utilize the use of allocated spectrum. For example, 3GPP radio network features to achieve better spectrum utilization and user peak rate, such as dual-cell HSDPA 42Mbps, requires two adjacent 5MHz carriers. Uncertainty on the future use of the allocated spectrum will hamper the good use of spectrum and disrupt the end user service.



- 3.3 In next 1-2 years, it is technically feasible to further improve spectrum efficiency to enable higher user peak rate through the evolution of multi-carrier HSPA technology. The technologies are the focus of 3GPP Rel9 and Rel10 standardization and will be a trend in global advanced mobile market. The technology assumes the support of MIMO and 64QAM, multi-carrier HSDPA can support downlink user rate up to 168Mbps by the aggregation of 4 x (5MHz) carriers. The option 3 approach will be a show stopper to the Multi-Carrier HSPA evolution. And to apply these technologies, operator needs to upgrade software and antenna system. The uncertainty of licence renewal will hamper the good use of spectrum and hurt the investment. It will also make the mobile user experience lag behind other advance market.

## 4 Competition

- 4.1 In case of licence re-auction, competition is likely distorted due to the higher cost to new licence owner. Mobile broadband technology is a continuous evolution towards better user experience. Existing licence owner has put their investment over a long period to reach current level of service. A new licence owner expects to offer the same level of service to existing player will have a high cost to compete with existing players.
- 4.2 Re-auction of the spectrum will also discourage investment. Incumbent operators will bid for the spectrum on the basis of the expected profitability of the services excluding the sunk costs, i.e., the sunk costs have already been borne regardless of whether the operator retains its licence. In contrast, a new entrant would need to factor in all its costs in establishing its business. Thus, in many cases incumbent operators would be expected to win an auction and thus the costs and uncertainty created by re-auctioning are unlikely to be justified in those cases.

## 5 Consumer interest

- 5.1 If operators were instead given no confidence over renewal, they would be expected to undertake only shorter and shorter term investments as the year of expiry of their licences approaches and avoid undertaking any longer term investments – an operator may face large losses if sunk assets need to be written off because its licence is not renewed. This could mean HK MBB consumers go without a major network upgrade for years compared with consumers in other regions.
- 5.2 Failure to allow operator's licence renewal can also cause harm to consumers through service disruption with the potential of unstable MBB service or coverage loss during network migration. Service disruption may be prolonged given the timeframe for a new entrant to establish its network.



## 6 Summary

- 6.1 NSN believes that option 1 in the consultation paper serves the best interest to the industry and consumer. It encourages incumbents to continue investment on Mobile broadband (MBB) technology innovation. It will also promote the highest value for spectrum by adapting on 3GPP multi-carrier HSPA evolution. An approach to simply go for option 2 or option 3 could distort the competition, disrupt investment and may cause disruption of end user services.