

May 24, 2017

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Nokia Solutions and Networks HK Limited
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Dear Sir/Madam,

Second Consultation Paper - Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments for Public Mobile Telecommunications Services and the Spectrum Utilization Fee

In response to OFCA's second consultation paper "Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments for Public Mobile Telecommunications Services and the Spectrum Utilization Fee", we are pleased to submit our views as enclosed.

Thanks for your attention.

Yours faithfully,



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Nokia's view on the Second Consultation Paper - Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments for Public Mobile Telecommunications Services and the Spectrum Utilization Fee

Nokia believes that the mobile industry needs to prepare for the immense mobile broadband traffic growth expected beyond 2020. This calls for the government and related authorities to allocate more spectrum to prepare for this growth. The current spectrum allocations of 850MHz, 2.6GHz, 2.1GHz and 2.3GHz Bands have been paving a strong foundation for the growth. Nokia sees this traffic growth demand also a key driver to utilize their spectrum in the existing 900MHz and 1800MHz Bands allocation. Hong Kong is well-known of being challenging in terms of radio conditions and congestion, efficient use of spectrum resource is then the key to guarantee user experiences and cope with the massive traffic in the long run. If the network capacity is reduced due to the reduced spectrum allocation, even using the latest technology is hard to maintain the same level of user experience and service continuity.

Nokia renders the following comments on the Second Consultation Paper on Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments and the Spectrum Utilization Fee.

Reserve part of the 900 MHz Band as RFR Spectrum to the incumbent mobile operators

- 1) 900MHz and 1800MHz Bands have been widely adopted for 3G and 4G services with minimum 2G services being maintained. In technology evolution towards LTE Advanced, LTE-A Pro and beyond, spectrum resources are crucial to leverage the technology benefits. For example, providing extreme mobile broadband experiences by means of LTE Carrier Aggregation technology demands a reasonably abundant spectrum resources. Without it, such technology benefit could hardly be fully manifested to the end users.
- 2) Low band 900MHz is inherently highly suitable for providing both outdoor and indoor coverage. Efficient utilization of this important spectrum resource is a must to ensure service continuation and improvement of key use cases in MTR and hot spots. If this critical spectrum resource is not re-assigned to the incumbents, service continuity for the end users will be greatly impacted.
- 3) Similiar to the Communcations Authority (CA)'s approach to re-assign part of the 1800 MHz Band as RFR Spectrum to the incumbents, Nokia suggests CA to consider to reserve part of the 900 MHz Band as RFR Spectrum to the incumbents due to the reasons mentioned in (1) and (2) above.

Spectrum Utilization Fee (SUF) should not be set high

- 4) High SUF is undoubtedly a heavy financial burden to an operator that will ultimately be passed onto the consumers in the form of higher tariff or degraded network performance. Therefore, high SUF is not on the side of maximizing the public interest.
- 5) High SUF will not only reduce operator's investments on network development but also will potentially hinder the development of innovation on mobile services and applications due to the higher service price passed onto the consumers.
- 6) These extra costs made to be paid by the public are believed to far outweigh the additional revenues by the high SUF to the government.
- 7) According to a report regarding spectrum pricing issued by GSMA in February 2017, the spectrum prices per MHz per population of Hong Kong are observed generally higher than those of the European countries. They are also considerably higher than those of Asian cities comparable to Hong Kong, such as Singapore and South Korea, in terms of the levels of population income and advancements of mobile services.