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通訊事務管理局辦公室
OFFICE OF THE COMMUNICATIONS AUTHORITY

Arrangements for the Frequency Spectrum in the 1.9 - 2.2 GHz Band upon Expiry of the Existing Frequency Assignments for the Provision of 3G Mobile Services and the Spectrum Utilization Fee

13 January 2014

The Decision made on 15 November 2013 (1)

- The Communications Authority ("CA") decided to adopt a hybrid approach to re-assign the 118.4 MHz of paired spectrum in the 1.9 – 2.2 GHz band ("3G Spectrum") upon expiry of the existing assignments in October 2016:

  – The four incumbent 3G operators will be offered the right of first refusal for 2/3 of the 3G Spectrum ("RFR Spectrum"), viz. 20 MHz each

  – Should any of the incumbent 3G operators decide not to exercise the right of first refusal, the available spectrum will be pooled with the remaining 1/3 of the 3G Spectrum for auction (collectively "Re-auctioned Spectrum").

The Decision made on 15 November 2013 (2)

- The Secretary of Commerce and Economic Development considered it appropriate to set:
  - The reserve price of the Re-auctioned Spectrum at HK$48 million per MHz
  - The spectrum utilisation fee ("SUF") of RFR Spectrum at the higher of HK$66 million per MHz or the average of the SUF of the Re-auctioned Spectrum, subject to a cap of HK$86 million per MHz

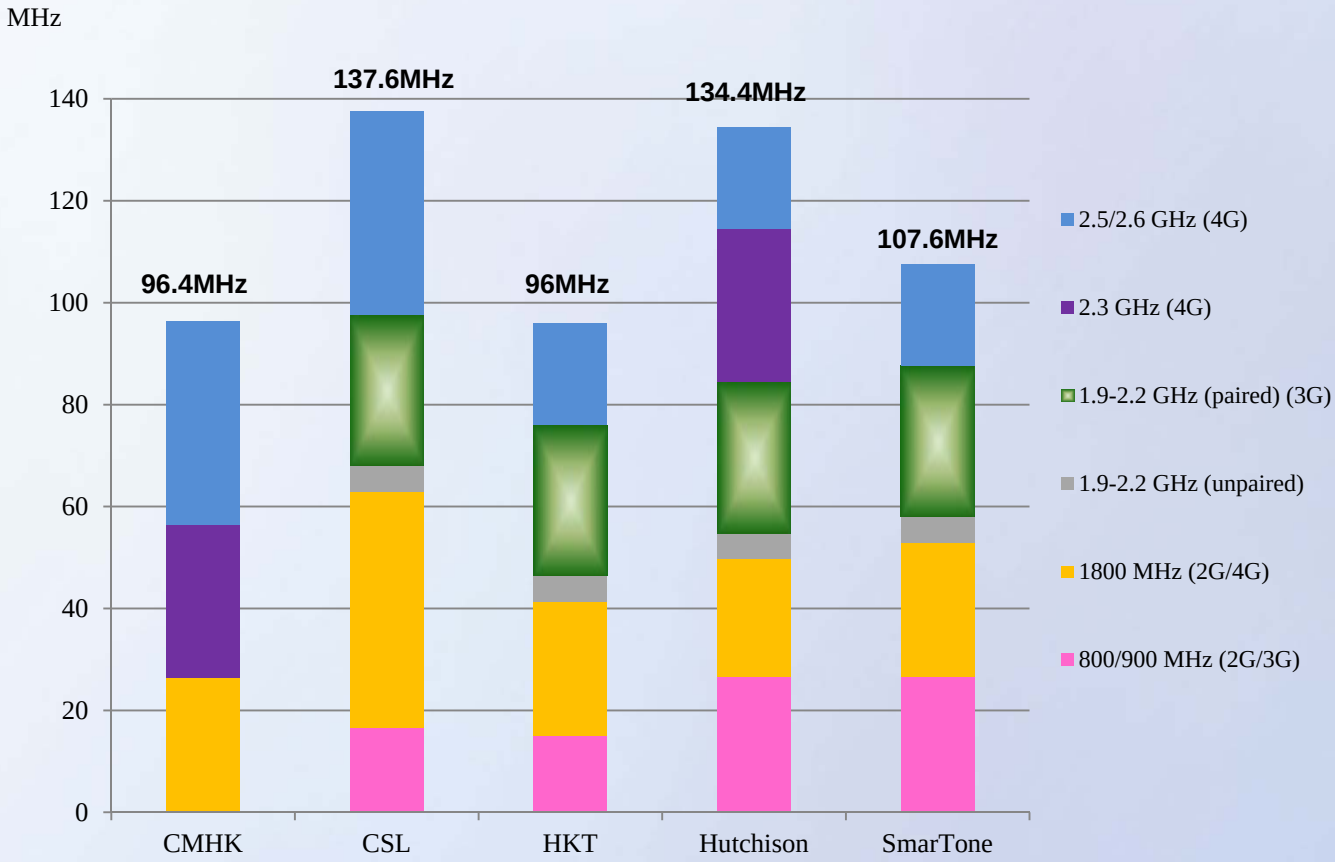
The Regulatory and Market Landscape (1)

- Mobile services market in Hong Kong fully liberalised since service introduction in the 1980s:
  - No limit on the number of licence
  - No restriction on foreign investment
- Mergers and acquisitions take place from time to time. The number of mobile network operators ("MNOs") and arguably the extent of competition could be reduced post transactions
- The CA finds it imperative to facilitate rather than foreclose competition when it is to exercise its statutory functions

The Regulatory and Market Landscape (2)

- As of today, a total of 572 MHz of spectrum has been assigned to the five MNOs for the provision of 2G, 3G and 4G services

Distribution of Spectrum Holdings among MNOs



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The Regulatory and Market Landscape (3)

- Spectrum assignment by auction ensures that the scarce public resource will be assigned to the MNOs which value it most and hence can put it to the most efficient use, thereby maximising its benefits to the community

Auction Date	Frequency Band (Services Provided)	Per MHz SUF for the Full Assignment Term (HK$)
Oct 2007	850 MHz (CDMA 2000)	5.1 million
Jan 2009	2.5/2.6 GHz (4G)	17.1 million
Jun 2009	1800 MHz (2G/4G)	19.6 million
Mar 2011	850/900 MHz (3G)	97.6 million
Feb 2012	2.3 GHz (unpaired) (4G)	5.2 million
Mar 2013	2.5/2.6 GHz (4G)	30.8 million

The Regulatory and Market Landscape (4)

- With the advent of smartphones in 2007, mobile data usage soared from 11 MB per customer per month at end 2007 to 954 MB per customer per month in September 2013

- Mobile data services are delivered on both the 3G and 4G networks. All MNOs have rolled out their 4G networks, but the number of 4G subscribers is still much smaller than that of 3G subscribers

	3G Service	4G Service
Amount of spectrum for service provision	173 MHz	260 MHz
Number of subscribers	9.6 million	1.8 million
Number of subscribers per MHz	55,500	7,000

The Regulatory and Market Landscape (5)

- While the 3G networks are congested at busy districts during busy hours, there exists ample capacity for mobile data services through the deployment of 4G spectrum by MNOs

- Network congestion problem is particularly acute along the Mass Transit Railway ("MTR") lines during busy hours:

  – The 200 MHz of spectrum in the 2.3 GHz and 2.5/2.6GHz bands released to the market since 2009 for provision of 4G services have yet to be deployed by the MNOs along the MTR lines

  – MNOs have refarmed only a small amount of spectrum in the 1800 MHz band from the provision of 2G to 4G services along the MTR lines

  – Heavy demand for data services along the MTR lines during busy hours is being met primarily by the 3G network capacity

Impact of Hybrid Option on Service Quality (1)

- Assessment by the Government's consultant: the hybrid approach is not expected to have any adverse impact on the overall service quality of the entire mobile networks or 3G networks in Hong Kong

- Incumbent 3G operators that do not acquire the Re-auctioned Spectrum can:

  – Adjust their timetable for spectrum refarming so as to meet the demand for 2G, 3G and 4G services and hence minimise any impact on service quality

  – Incentivize their 3G customers to migrate to the 4G networks, e.g. through offer of integrated mobile data plans and promotion of 4G handsets

  – Review their 3G capacity leasing arrangements to other MNOs and mobile virtual network operators

Impact of Hybrid Option on Service Quality (2)

- The 1/3 of 3G Spectrum (viz. 2x5 MHz per incumbent) to be re-auctioned under the hybrid approach amounts to only 7% to 10% of the total spectrum holding of individual incumbent 3G operators (viz. 96 MHz to 137.6 MHz)

- The CA does not agree to the allegations by the incumbent 3G operators and their consultant that the hybrid approach will result in a significant drop in the 3G data download speed and a complete loss of voice service on the MTR and at some locations as:

  – Such allegation just focuses on the 3G networks and disregards the ample 4G capacity available

  – Due to the time-sensitive nature of voice traffic, it is a normal network planning practice for MNOs to prioritise voice traffic over data traffic

  – With proper network planning, the RFR Spectrum is more than sufficient to ensure a continued provision of voice services

Impact of Hybrid Option on Service Charges (1)

- The CA does not agree to the allegation by the incumbent 3G operators that re-auctioning part of the 3G Spectrum and the method for setting the SUF of the RFR Spectrum will lead to a high level of SUF and hence result in high service charges:

  – Spectrum assignees would invariably need to pay SUF irrespective of whether the 3G Spectrum is assigned administratively or through the hybrid approach

  – Existing SUF of the 1/3 of 3G Spectrum to be re-auctioned accounts for about 0.5% of MNOs' total annual operating cost on average

  – In a keenly competitive market, mobile service charges are primarily set by forces of demand and supply in the market instead of the amount of SUF paid by the MNOs

Impact of Hybrid Option on Service Charges (2)

- The lower limit of the SUF for the RFR Spectrum at HK$66 million per MHz is reasonable as it is derived from the actual fee payable by the incumbent 3G operators for using the 3G Spectrum in 2015/16 (the last year of the existing assignment term) and the value of spectrum is expected to increase over time amid the robust growth in mobile data traffic

- Commercial decision of the incumbent 3G operators as to whether they will bid for the Re-auctioned Spectrum

- If any of the incumbent 3G operators does not acquire the Re-auctioned Spectrum, it will not have to pay the relevant SUF. The resources thus saved can be used to invest in the infrastructure so as to compensate for the reduction in spectrum holding

Way Forward (1)

- The Administration is preparing for consideration by the Legislative Council through the negative vetting procedure:
  - New regulation to prescribe the method for determining the SUF of the RFR Spectrum
  - Amendment regulation for determining the SUF of the Re-auctioned Spectrum
- The CA expects to offer to the incumbent 3G operators the right of first refusal for the RFR Spectrum in the second half of 2014

Way Forward (2)

- To prepare for the auction:
  - The Government will gazette the minimum fee of the SUF for the Re-auctioned Spectrum
  - The CA will gazette the terms and conditions of the auction
  - The Office of the Communications Authority will issue the information memorandum to invite interested parties for bidding of the Re-auctioned Spectrum
- The auction is expected to be conducted in the fourth quarter of 2014
- The incumbent 3G operators and new spectrum assignees will have about two years to reconfigure their existing networks and/or to roll out new network infrastructure before the new spectrum assignment term starts in October 2016

Thank You

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