



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

**Legislative Council Panel on
Information Technology and Broadcasting**

4 February 2013

The Issue

- 2 x 60 MHz of frequency spectrum in the 1.9 – 2.2 GHz band (“3G spectrum”) was assigned through auction to four mobile network operators in October 2001 for a tenure of 15 years
 - Frequency assignments to expire on 21 October 2016
- Need to decide on the spectrum re-assignment arrangements following consultation with the industry
- Currently five mobile network operators in Hong Kong
 - Incumbent 3G operators : each has 2 x 15 MHz of 3G spectrum
 - CSL
 - HKT
 - Hutchison
 - SmarTone
 - China Mobile HK : not assigned with any 3G spectrum

2007 Spectrum Policy Framework

- A **market-based approach** in spectrum management will be used wherever the CA considers that there are likely to be **competing demands** for the spectrum from providers of non-Government services, *unless there are overriding public policy reasons to do otherwise*
- **No legitimate expectation** on the part of the licensees that there will be **any right of renewal or right of first refusal** of any licence or frequency assignment upon expiry
- Three years' **advance notice** (by October 2013)
 - Frequency assignment to be renewed with different frequencies assigned
 - Frequency assignment not to be renewed upon expiry

Two Rounds of Consultation : The First Consultation Paper

Three spectrum re-assignment options proposed

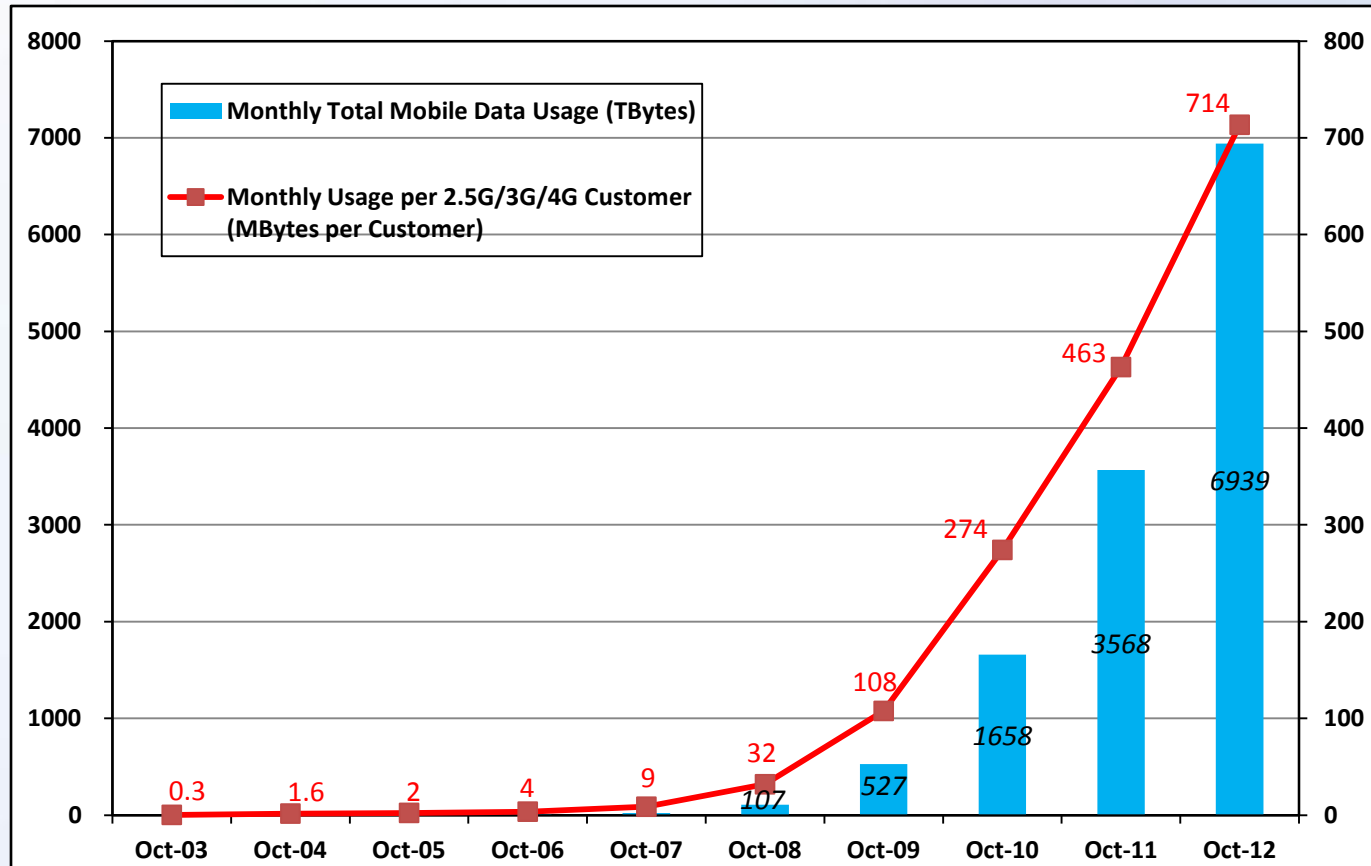
- Option 1 – Administratively-assigned approach
 - Right of first refusal to all incumbents to acquire their existing frequency holdings
- Option 2 - Full-fledged market-based approach
 - Government to re-auction all the spectrum
- Option 3 - Market-based approach cum administratively-assigned approach
 - Right of first refusal to all incumbents to retain 2/3 of their existing frequency holding, i.e. 2 x 10 MHz each, 2 x 40 MHz in total
 - Government to re-auction the remaining 1/3 of spectrum returned from each of the incumbents, i.e. 2 x 20 MHz in total

Submissions to the First Consultation Paper

- First consultation closed on 15 July 2012, lasted for 3½ months
 - 11 submissions received
 - 7 supplementary submissions in July - September
 - 1 additional submission in October
- Composition of the 12 respondents
 - 5 mobile network operators (“MNOs”)
 - 1 business partner of an MNO
 - 3 equipment vendors / works contractors
 - 3 members of the public

View of CA : There Are Competing Demands for The Spectrum

- Robust growth in mobile data traffic



- China Mobile HK indicated keen interest in the spectrum

Market-Based Approach in Spectrum Management

- According to the Spectrum Policy Framework, Option 2 should be adopted *unless there are overriding public policy reasons to do otherwise*. Option 2 means :
 - To re-auction all the spectrum
 - A full-fledged market-based approach
- However, Option 2 may lead to changes in frequency assignment to the incumbent 3G operators :
 - Lose parts or all of their 3G spectrum
 - Assigned with spectrum in different frequency sub-bands
- Need to conduct impact assessment on Option 2

Impact If Option 2 Is Adopted

- Degradation of service quality of mobile data services
 - Decrease in data download speed
 - Increase in number of drop calls
- Weakening / complete loss of indoor 3G service coverage at hundreds of sites
 - MTR lines and stations
 - Airport terminals
 - Hong Kong Convention and Exhibition Centre
 - Asia World Expo
 - Major shopping malls

SCED : Overriding Public Policy Reasons

- Impact of Option 2 during the 2-3 years transitional period post October 2016
 - Degradation of customer service quality
 - Weakening / complete loss of indoor 3G service coverage
- Overriding public policy reasons to deviate from the full-fledged market-based approach in re-assignment of the 3G spectrum (i.e. not adopting Option 2)
- Need to compare Options 1 and 3 in meeting the multiple objectives in spectrum re-assignment

Comparison between Options 1 & 3

- Option 1 – maintain the status quo
- Option 3 – a partial administratively-assigned cum partial market-based approach
- Option 3 more favourable as it meets the following objectives of spectrum re-assignment
 - Ensuring customer service continuity
 - Efficient spectrum utilisation
 - Promotion of effective competition
 - Encouragement of investment and promotion of innovative services

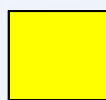
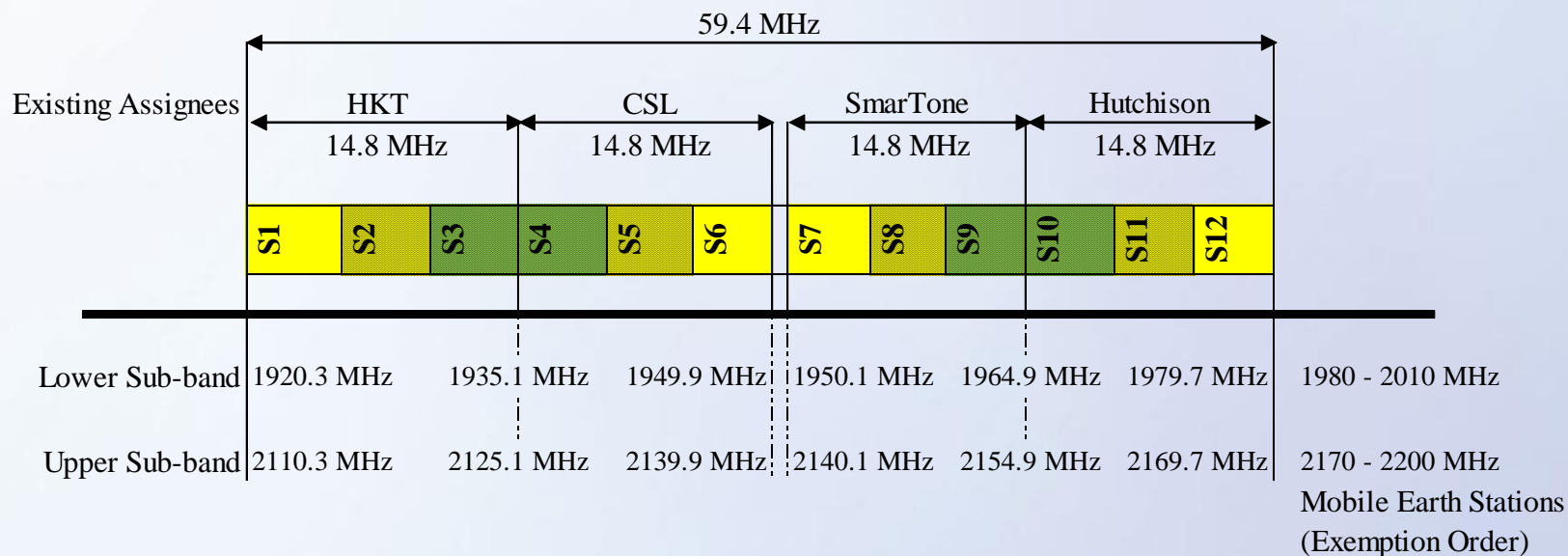
The Second Consultation Paper

- SCED has come to the view that Option 3, a hybrid of administratively-assigned and market-based approach, should be adopted for further consultation
- Other issues under consultation
 - Amount of spectrum to be re-assigned through right of first refusal (“RFR Spectrum”) and through auction
 - Proposed band plan for spectrum re-assignment
 - Setting of SUF for the RFR Spectrum
 - Auction design

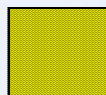
RFR Spectrum and Re-auctioned Spectrum

- RFR Spectrum : 2/3 of existing frequency holding
(i.e. 2 x 10 MHz for each incumbent)
 - Enable the current peak data download speed of 42 Mbps to be maintained
 - Enable the incumbent 3G operators to maintain an acceptable level of 3G service quality
- Re-auctioned Spectrum : 1/3 to be returned from each incumbent (i.e. 2 x 20 MHz in total)
- If any incumbent 3G operator decides not to exercise the right of first refusal
 - Spectrum relinquished will be pooled together for re-auction

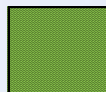
Proposed Band Plan for Re-assignment of the Frequency Spectrum in the 1.9 - 2.2 GHz Band



Slots of 5 MHz bandwidth to be offered to incumbent 3G operators under the right of first refusal



Slots of 4.9 MHz bandwidth to be offered to incumbent 3G operators under the right of first refusal



Slots of 4.9 MHz bandwidth which would be made available for re-auction

Spectrum Utilisation Fee

- SUF of the Re-auctioned Spectrum :
 - To be determined by auction
- SUF of the RFR Spectrum :
 - Determined through the market-based mechanism, with two methods proposed

Spectrum Utilisation Fee – RFR Spectrum

- First Method
 - Annual royalty payment payable for 3G spectrum in 2015/16 converted to 15-year usage value or SUF of the Re-auctioned Spectrum, whichever is higher
 - Annual royalty payment for the 3G spectrum in 2015/16 = \$5.1 million per MHz
 - Converted to 15-year usage value = \$77 million per MHz

Spectrum Utilisation Fee – RFR Spectrum (2)

- Second Method

- Average of the SUF of the Re-auctioned Spectrum and the weighted average of the past market benchmarks
- Weighted average of the past market benchmarks : around \$80 million per MHz
 - Royalty payment payable by the incumbent 3G operators in 2015/16 (converted to a 15-year usage value)
 - SUF of 2.5/2.6 GHz spectrum (auctioned in Jan 2009)
 - SUF of 850/900 MHz spectrum (auctioned in Mar 2011)
- SUF of 2.5/2.6 GHz spectrum to be auctioned in Mar 2013 will not be taken into account
 - To prevent any strategic bidding behaviour from distorting the outcome of the 2013 auction

Auction Design

- Eligible Bidders
 - All interested parties
 - Include the incumbent 3G operators irrespective of whether or not they have exercised the right of first refusal for the RFR Spectrum
- Auction Reserve Price for the Re-auctioned Spectrum
 - To be set at a relatively high level, indicative of the true minimum value of the spectrum
 - To prevent the incumbents from strategically adjusting their demand for the Re-Auctioned Spectrum so that they may pay less SUF for the RFR Spectrum

Auction Design (2)

- Auction Format
 - Simultaneous Multi-Round Ascending (“SMRA”) auction format
- Spectrum Cap
 - All the incumbent 3G operators exercise the right of first refusal for the RFR Spectrum
 - No spectrum cap will be imposed
 - In the unlikely situation of two or more incumbent 3G operators decide not to exercise the right of first refusal
 - A 40MHz spectrum cap will be imposed
 - The incumbents that have exercised the right of first refusal will be allowed to bid for at most 2 x 10 MHz of the Re-auctioned Spectrum

Thank You