

**For discussion on
8 May 2017**

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

**Implementation of the Spectrum Utilisation Fee Charging Scheme
for Spectrum Assigned Administratively**

PURPOSE

This paper informs Members of the Government's plan to implement the charging scheme for the spectrum utilisation fee ("SUF") for spectrum assigned administratively ("the Charging Scheme"). The decision to introduce the Charging Scheme was taken in 2011 after public consultation. The decisions were set out in a joint statement issued by the Secretary for Commerce and Economic Development ("SCED") and the former Telecommunications Authority ("TA") ("Joint Statement") (at **Annex A**).

BACKGROUND

2. In 2007, the Government promulgated the Radio Spectrum Policy Framework ("the Framework") (at **Annex B**) which reflects our policy position and key issues in relation to the management of radio spectrum in Hong Kong. Paragraph 7.1 of the Framework provides that in principle, SUF will be applicable to all non-government use of spectrum. Paragraph 3.1 of the Framework also provides that a market-based approach in spectrum management will be used whenever the Communications Authority ("CA") considers that there are likely to be competing demands from providers of non-Government services. Under the present system, mobile network operators ("MNOs") use spectrum with competing demands to provide public mobile services and they accordingly pay a SUF as determined by auction or benchmarking for using the relevant spectrum.

3. For spectrum where the CA considers that there are not likely to be competing demands when it is made available for assignment, such spectrum will be assigned to licensees administratively upon application¹. Paragraph 7.2 of the Framework provides that for this type of spectrum not released through auction or other market mechanisms, the SUF may be set to reflect the opportunity costs of the spectrum. This arrangement is in line with our policy to promote the efficient use of spectrum as imposing an SUF would help encourage spectrum users to put the spectrum assigned to them to efficient use. However, at present, no SUF is applicable to the above non-government use of spectrum that is assigned administratively.

4. Since commercial users of spectrum assigned administratively are not required to pay for the use of the scarce public resource of spectrum, there have been queries of whether such users have the incentive to use spectrum efficiently. In frequency bands that are congested and anticipated to be more so in future, the present arrangement will diminish the CA's ability to assign spectrum to potential users which require the same frequencies to provide services. By introducing the Charging Scheme, spectrum users will be encouraged to make more efficient use of spectrum and return excess spectrum to the CA so that it may subsequently assign the spectrum to other users which are in need of such spectrum to support their operation.

Public Consultation in 2010 and the Joint Statement in 2011

5. In 2010, in view of the role of SUF in promoting spectrum efficiency, the SCED and the former TA issued a consultation paper to seek the views of the public and the industry on the proposed implementation of the Charging Scheme. In December 2010, we also briefed the Panel on Information Technology and Broadcasting on the proposed Charging Scheme and Members were in general supportive of the introduction of the Charging Scheme. In 2011, having carefully considered the views and comments received during the consultation exercise as well as other relevant factors, the SCED and the former TA

¹ Examples of spectrum assigned administratively include fixed links, Electronic News Gathering/Outside Broadcast links and satellite uplinks. Please refer to paragraph 7 of this paper for more details.

issued the Joint Statement to set out their responses to the submissions and their decisions on the matter. The salient features of the Charging Scheme are set out in the following paragraphs.

Coverage

6. SUF shall be applied to the use of administratively assigned spectrum in frequency bands that are congested (i.e. 75% or more occupied) and are anticipated to become more congested in the future.

7. On the above basis, the Joint Statement designated eight frequency bands that should be subject to payment of SUF. These frequency bands, set out in paragraph 9 below together with the amount of SUF as stated in the Joint Statement, include those allocated for fixed links², Electronic News Gathering/Outside Broadcast (“ENG/OB”) links³ and certain satellite uplinks⁴. Major users of fixed links are public utilities, MNOs and fixed network operators, while major users of the ENG/OB links and satellite uplinks are television broadcasters and external fixed network operators respectively.

Level of SUF

8. The Joint Statement stated that the least cost alternative (“LCA”) approach should be adopted in deriving the opportunity cost for spectrum assigned administratively. This methodology is based on the lowest cost a user will necessarily incur in using an alternative means to provide the same service assuming that the spectrum it currently utilises would be taken away. SUF is set at the cost difference between a spectrum user’s current operation and its least cost alternative. An explanation of the LCA approach is at **Annex C**.

² A fixed link means a radio transmission path that is established between fixed locations for radiocommunications purposes.

³ An ENG/OB link means a radio transmission path that is established through the use of terrestrial portable or transportable radio equipment for electronic news gathering or outside broadcast services.

⁴ A satellite uplink means a radio transmission path that is established in the direction from an earth station to a space station of a satellite system.

9. Based on the LCA approach, as stated in the 2011 Joint Statement, the amount of SUF for the eight congested frequency bands identified was as follows –

| Designated Frequency Bands (MHz) | Use | SUF (in HK\$/MHz/annum) | |
|----------------------------------|--------------------------------|---|---|
| | | Exclusive Use | Non-Exclusive Use |
| 2055 – 2095 | ENG/OB links | 18,000 | 9,000 |
| 2200 – 2290 | ENG/OB links | | |
| 5875 – 6425 | Fixed links / Satellite uplink | No exclusive use | 350 |
| 6425 – 7100 | Fixed links / Satellite uplink | 18,000 (for frequencies assigned under carrier and SPETS ⁵ licences) | 3,000 (for frequencies assigned under carrier and SPETS licences) |
| 7421 – 7900 | Fixed links | | |
| 7900 – 8000 | Fixed links | | |
| 8275 – 8500 | Fixed links | | |
| 10700 – 11700 | Fixed links | or 30,000 (for frequencies assigned under WBLRS ⁶ licences) ⁷ | or 5,000 (for frequencies assigned under WBLRS licences) ⁷ |

⁵ SPETS licence stands for Self-Provided External Telecommunications System licence.

⁶ WBLRS licence stands for Wide Band Link and Relay Station licence.

⁷ There is a difference in the proposed SUF between frequencies assigned under carrier/SPETS licences and WBLRS licences, for there is a gap between the per kHz spectrum management fee components of the two types of licences. As the SUF is calculated based on the difference between the costs of the least expensive alternative means and those of the current means of providing the same services, operators running on the WBLRS licences, which now pay a lower cost than carrier/SPETS licensees, would naturally need to pay a higher SUF.

Implementation Issues

10. The Joint Statement also stated the following implementation arrangements –

- (a) to adopt a transitional period of five years before the Charging Scheme is fully in force so that the impact on spectrum users could be reduced. The SUF would be levied two years after the implementation of the Charging Scheme. This two-year grace period would allow spectrum users sufficient time to evaluate their spectrum use and to consider whether they wish to make use of other alternatives and to return part of or all spectrum to the CA. After the two-year grace period, SUF would be imposed using a three-year phase-in approach, with 30% of the SUF imposed at the beginning of the third year, 70% at the beginning of the fourth year, and the full payable amount for the fifth year and beyond; and
- (b) with a view to providing financial incentive for users to return the spectrum subject to SUF at an early stage, a one-off grant amounting to 10% of the annual SUF applicable to the spectrum use, or the actual cost incurred in migrating to other means of providing the services, whichever is the less, would be provided to these users if the spectrum is returned within the two-year grace period.

Developments since 2011

11. After the issue of the Joint Statement in 2011, the implementation of the above Charging Scheme was put on hold because of the need to tackle the unprecedented exercise concerning the assignments of spectrum and related SUF – the original assignments of some 120 MHz of spectrum in the 1.9 – 2.2 GHz band (“the 3G Spectrum”) expired in October 2016 and we needed to focus on the re-assignment arrangements for the first time in Hong Kong after the promulgation of the Framework in 2007. It was also the first spectrum re-assignment exercise proposing and finally adopting a hybrid

administratively-assigned cum market-based approach. The entire re-assignment exercise started with two rounds of public consultation launched in early 2012 and late 2012 respectively, followed by the issue of a joint statement in late 2013 and the conduct of an auction in late 2014. The exercise was finally completed in late 2016 with the successful handover of spectrum. To avoid confusing the industry with two concurrent exercises which touched on the question of the levy of SUF for different sets of spectrum and to allow sufficient time for the industry to get prepared for the Charging Scheme, we have not implemented the Charging Scheme during this period. With the completion of the 3G Spectrum re-assignment exercise, it is an appropriate time to proceed to implement the Charging Scheme.

IMPLEMENTATION OF THE CHARGING SCHEME

12. Having regard to the fact that the levels of SUF were made in 2011, the SCED has reviewed the levels of SUF and considered it appropriate to adjust them to the 2017 price level based on inflation with a view to reflecting the change in value of spectrum over time⁸ –

| Designated Frequency Bands (MHz) | Use | Updated SUF in 2017 [original SUF in 2011] (in HK\$/MHz/annum) | |
|----------------------------------|--------------------------------|--|-----------------------|
| | | Exclusive Use | Non-Exclusive Use |
| 2055 – 2095 | ENG/OB links | 21,600 [18,000] | 10,800 [9,000] |
| 2200 – 2290 | ENG/OB links | | |
| 5875 – 6425 | Fixed links / Satellite uplink | No exclusive use | 432 [350] |

⁸ The Composite Consumer Price Indexes for 2012, 2013, 2014, 2015 and 2016 are 4.1%, 4.3%, 4.4%, 3.0% and 2.4% respectively, and the headline inflation forecast for 2017 is 1.8%. We therefore propose that the levels of SUF should be adjusted upwards by about 20%.

| | | | |
|---------------|--------------------------------------|--|--|
| 6425 – 7100 | Fixed links / Satellite uplink | 21,600 [18,000] (for frequencies assigned under carrier and SPETS licences) | 3,600 [3,000] (for frequencies assigned under carrier and SPETS licences) |
| 7421 – 7900 | Fixed links | | |
| 7900 – 8000 | Fixed links | | |
| 8275 – 8500 | Fixed links | | |
| 10700 – 11700 | Fixed links | or | or |
| | | 36,000 [30,000] (for frequencies assigned under WBLRS licences) | 6,000 [5,000] (for frequencies assigned under WBLRS licences) |

13. The Office of the Communications Authority (“OFCA”) will conduct updating of the utilisation rates of the relevant frequency bands at mid-2017 right before the implementation of the Charging Scheme and finalise by then the designation of frequency bands that should be subject to the payment of SUF based on the criteria set out in paragraph 6 above.

FINANCIAL IMPLICATIONS ON THE SPECTRUM USERS

14. It has to be stressed that the purpose of the Charging Scheme is to encourage the efficient use of spectrum. According to our information as at 1 April 2017 and subject to the outcome of updating to be conducted by OFCA as mentioned in paragraph 13 above, 24 users with spectrum assignments in the congested bands identified in paragraph 12 above will have to pay SUF. Assuming that the list of frequency bands that should be subject to the payment of SUF would remain unchanged, and that the spectrum users do not seek to migrate to other less congested spectrum or to other means of providing their services, we anticipate that the total amount of SUF collected in the third and fourth years will be around \$6 million and \$14 million respectively⁹ and that in the fifth year when the full amount is payable will be less than \$21 million. Taking into account the fact that some spectrum users may

⁹ The amount of SUF collected in the first and the second years will be zero given the two-year grace period.

resort to using the spectrum more efficiently, the amount of SUF received will likely be lower than the above figures.

WAY FORWARD

15. We have already informed affected spectrum users of the implementation of the Charging Scheme. The CA will make an order (“the Order”) to designate the frequency bands in which the use of spectrum is subject to the payment of SUF, and the SCED will make a regulation (“the Regulation”) to prescribe the levels of SUF pursuant to section 32I of the Telecommunications Ordinance (Cap. 106).

16. We plan to arrange gazettal of the Order and the Regulation, which are subject to the negative vetting of the Legislative Council, in the second half of 2017. Subject to the legislative process, it is anticipated that the Charging Scheme will be implemented in end 2017 or early 2018.

**Commerce and Economic Development Bureau
Office of the Communications Authority
April 2017**

Spectrum Utilization Fee for Spectrum Assigned Administratively

Joint Statement of the Secretary for Commerce and Economic Development and the Telecommunications Authority

23 September 2011

Introduction

On 26 November 2010, based on the recommendations of a consultancy study¹ commissioned by the Government, the Secretary for Commerce and Economic Development (“SCED”) and the Telecommunications Authority (“TA”) jointly issued a public consultation paper² (“the consultation paper”), to seek views on the proposed implementation of a charging scheme in respect of spectrum utilization fee (“SUF”) for spectrum assigned administratively for non-government use. The consultation paper set out proposals on the principles for setting SUF, the frequency bands subject to SUF, the levels of SUF and implementation details on the SUF charging scheme. The consultation period lasted for three months.

2. The Administration received ten submissions³ in response to the

¹ The consultancy report is available on OFTA web site at –

<http://www.ofta.gov.hk/en/report-paper-guide/report/rp20101126.pdf>

² The consultation paper is available from the websites of the Commerce and Economic Development Bureau and the Office of the Telecommunications Authority at –

http://www.cedb.gov.hk/ctb/eng/paper/pdf/suf_e.pdf and

<http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/cp20101126.pdf>

³ The submissions in response to the consultation paper are available on OFTA website at –

<http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20110303/table.html>

consultation paper from the following parties (listed in alphabetical order) –

- (1) Asia Satellite Telecommunications Company Limited (“AsiaSat”)
- (2) Asia Television Limited (“ATV”)
- (3) Hong Kong Broadband Network Limited (“HKBN”)
- (4) Hong Kong CSL Limited (“CSL”)
- (5) Hong Kong Telecommunications (HKT) Limited (“HKT”)
- (6) Hutchison Telecommunications (Hong Kong) Limited (“HTHK”)
- (7) MEASAT Satellite Systems Sdn Bhd (“MEASAT”)
- (8) REACH Networks Hong Kong Limited (“REACH”)
- (9) SmarTone Mobile Communications Limited (“SmarTone”)
- (10) Television Broadcasts Limited (“TVB”)

3. Having considered the submissions and other relevant factors, the SCED and the TA set out in this Joint Statement their responses to the submissions and their decisions on this matter. For the purpose of this Joint Statement, any reference to “the Administration” shall mean both the SCED and the TA. For the avoidance of doubt, the SCED and the TA are fully aware of their specific powers under section 32I of the Telecommunications Ordinance (Cap.106) (the “TO”) to designate the frequency bands in which the use of spectrum is subject to the payment of SUF and to prescribe the level of SUF.

The Submissions and the Administration’s Responses and Decisions

4. The consultation paper flagged up ten specific questions. These questions, the feedback received and the Administration’s decisions are set out below.

Question 1 : Who to Pay SUF

Do you agree that SUF for spectrum assigned administratively should be applicable to the frequency bands meeting the criteria below, except bands with uses which carry significant public interests, under the “commons approach”⁴ or under temporary assignment for technical trials or special events) –

- (a) the frequency band is currently congested, the threshold of which being at least 75% occupied; and
- (b) the demand for using the frequency band associated with its current use is expected to grow over time (for instance, in the next three to five years); or a high potential demand for the frequency band for alternative use(s) is expected.

⁴ Bands under the “commons approach” refer to frequencies designated as a common resource which can be accessed by anyone subject to certain rules, and rely on users of the spectrum to come up with their own solutions to resolve potential interference problem. This approach allows an unlimited number of unlicensed users to share frequencies with usage rights governed by technical standards and/or etiquette. Spectrum will be available to all users who are willing to comply with the technical standards or to follow the established etiquette where those standards and etiquette help ensure that interference problems would be mitigated. Examples include WiFi bands and bands for cordless phones.

The Submissions

5. Except for SmarTone, all respondents who commented on this question (ATV, CSL, HKBN, HKT, HTHK and REACH) agreed that SUF for spectrum assigned administratively should be applicable only to congested frequency bands. Five of these respondents (ATV, CSL, HKBN, HTHK and REACH) agreed that 75% occupancy should be adopted as the congestion threshold. The remaining one, HKT, suggested an alternative threshold of 80% occupancy. Some respondents (ATV, HKT and HTHK) considered that “expected growth in demand” and “high potential demand for alternative use(s)” as congestion criteria should be qualified by, for instance, a clearer or quantitative criterion. HKT was of the view that “expected growth in demand” should also take into account the spectrum supply arising from digital dividend – which is likely to offset the growth in demand. CSL offered a set of criteria that largely resembled those set out in the consultation paper, except that it proposed the concept of localised congestion, with Hong Kong being divided into different districts and the congestion of spectrum in each district being calculated separately. CSL also proposed imposing a more stringent condition on “expected growth in demand” by requiring the expected demand to exceed supply within five years, i.e. 100% occupancy is expected in a band within five years. SmarTone opined that SUF should be charged based on the market-based mechanism which serves to allocate spectrum and obviates the need to identify congested frequency bands.

The Administration's Response and Decision

6. The Administration notes the following -
- (a) all respondents except one agreed that SUF for spectrum assigned administratively should be applicable only to congested frequency bands;
 - (b) in respect of the definition of a “congested band”, most respondents agreed with the adoption of 75% occupancy as the congestion threshold; and
 - (c) respondents generally agreed that the congestion threshold, coupled with “expected growth in demand” or “high potential demand for alternative use(s)”, should form the criteria in deciding whether SUF should be charged for a particular frequency band.
7. In determining “expected growth in demand” and “high potential demand for alternative use(s)” of a particular frequency band, the Administration considers that, rather than imposing a rigid figure, regard should be made to a basket of figures or factors. They may include the past and future demand and supply, utilization trend of that frequency band, international and regional market and technological development concerning the frequency band, other viable alternatives, local market development and other factors that may be appropriate. This basket would form a more useful frame of reference than a rigid figure to assess whether there is expected growth in demand or high potential demand for

alternative use(s). CSL's concept of "localised" congestion can be effectively applied in countries or regions with an extensive geographical area and wide variations in population density. However, given the small size of Hong Kong, such an approach would be overly complicated. Meanwhile, the proposal of using market-based mechanism to allocate spectrum (e.g. through auction) as in SmarTone's proposal does not work well for spectrum administratively assigned as most of the bands of this kind are already occupied and used on a shared basis by a number of users. Withdrawing assignment and then putting them for auction would be too disruptive for existing users.

8. The Administration concludes that SUF for spectrum assigned administratively should be applicable to frequency bands meeting the following criteria –

- (a) the frequency band is currently congested, the threshold of which being at least 75% occupied; and**
- (b) the demand for using the frequency band associated with its current use is expected to grow in the next three to five years, or a high potential demand for the frequency band for alternative use(s) is expected.**

Question 2 : How to Set the Level of SUF

Do you agree that SUF levied on spectrum assigned administratively

should be based on the Least Cost Alternative (“LCA”) approach?

[Note: LCA refers to the alternative means with the lowest costs in providing the same service assuming that the spectrum it currently utilizes were to be taken away.]

The Submissions

9. Three respondents (HKT, HTHK and REACH) agreed with the use of the LCA approach. Another three (ATV, CSL and TVB) wondered what the case would be if there were practically no matching or viable alternative to provide the same service. HKBN considered that congested spectrum should be released by auctions similar to the frequency bands for public mobile communications services, and the level of SUF derived through the LCA approach might serve only as a reserve price for the auction. SmarTone opined that the LCA approach should be complemented by using a market benchmark approach, i.e. finding a reference value of spectrum through market information such as auction price of spectrum or market value of companies.

The Administration’s Response and Decision

10. The Radio Spectrum Policy Framework (the “Policy Framework”) provides that in general, SUF for spectrum assigned administratively is to reflect the opportunity costs of spectrum use. In the current exercise, the Administration has proposed to use the LCA approach in ascertaining such opportunity costs. The central idea of the

LCA approach is to consider what that user might do if the spectrum it uses were to be taken away. For instance, the user might have to switch to another means of providing the same service. The opportunity costs were thus represented by the additional costs incurred by that user of the spectrum in migrating to the lowest-cost alternative means to provide service. Even if there were no matching or viable alternative for a spectrum user to provide the same service, its occupation of a band might deny the use by another user and thus still carry an opportunity cost. For example, for spectrum that may be allocated for both fixed link service and fixed-satellite service on a co-primary basis, using the spectrum for satellite uplink application (which some respondents considered that there was no viable service provision alternative) would deny the use of the same spectrum for fixed link application. The opportunity cost for granting the spectrum for the satellite uplink application would be calculated on the basis of the least cost alternative for the displaced fixed link user. Indeed, our approach goes beyond identifying the additional cost of the alternative in providing the service for a particular user; when an alternative is not available, the Administration will examine whether the spectrum use prevents other potential users from using the spectrum.

11. Regarding HKBN's proposal to release the congested spectrum through auctions, it should be noted that the spectrum in congested frequency bands has already been assigned administratively and in use on a shared basis by a number of users. Thus, re-assignment or further assignment of the spectrum by auction would be too disruptive to existing

users and is neither reasonable nor practicable. We understand SmarTone's proposal of using the market benchmarks approach (such as spectrum market transactions and market value of company)⁵ to complement the calculation of SUF. Theoretically, the market benchmarks approach is appealing because it appears to be simple, objective and transparent. However, it has very limited applicability in the case of Hong Kong. The frequency bands covered in the current exercise are limited to those allocated for fixed links, Electronic News Gathering / Outside Broadcasting ("ENG/OB") links and satellite links. These bands were not auctioned or traded, thus there is no reference point about their value in the market; the value of them may share only a very small portion of a companies' value, and such portions among different companies are expected to differ.

12. In conclusion, the Administration decides to adopt the LCA approach on setting the SUF levied on spectrum assigned administratively, with the consideration of alternative uses of spectrum taken into account as and when appropriate.

Question 3 : the Level of SUF for Fixed Links

Do you agree with the approach on setting the SUF for congested frequency bands for fixed links as mentioned in the consultation paper?

⁵ This has been discussed in detail in paragraphs 23 to 25 of the consultation paper.

Note: The bands identified as congested include –

6440 – 7100 MHz
7421 – 7900 MHz
7900 – 8000 MHz
8275 – 8500 MHz
10700 – 11700 MHz

The Administration’s proposal on SUF level is as follows –

(a) Non-exclusive use

(i) HK\$3,000 per MHz per annum for Fixed Telecommunications Network Services (“FTNS”) licence / fixed carrier (“FC”) licence / unified carrier (“UC”) licence; and

(ii) HK\$5,000 per MHz per annum for Wide-band Link and Relay Station (“WBLRS”) licence.

(b) Exclusive use

(i) HK\$18,000 per MHz per annum for FTNS/FC/UC licence; and

(ii) HK\$30,000 per MHz per annum for WBLRS.

The Submissions

13. REACH agreed with the proposal. HTHK considered that the SUF for fixed links should be the lower of (a) \$3,000 per MHz per annum and (b) the actual LCA amount to be determined on a case-by-case basis if the spectrum user requested so. CSL expressed concerns over the SUF level applicable to fixed links operating in the 10700 – 11700 MHz band (“the 11 GHz band”). It made references to the report of the consultancy study which recommended different SUF charges for bands

in the 5 – 10 GHz range and in the 10 – 20 GHz range. CSL came to a view that SUF for the fixed links in 11GHz band, which spread across below and above the 10GHz “tipping point”⁶, should be the lower of the two. CSL also noted that spectrum could be for exclusive or non-exclusive use⁷. It sought clarification as to what defines “exclusive use” and who would determine under what criteria the assignment of spectrum would be put to “exclusive use”. It further opined that the Administration should clarify whether the costs of LCA in the SUF calculation included capital cost and secondary investment costs. ATV and TVB objected to any SUF levied on their fixed links used for programme feed purposes, on the grounds that such links were used as part of the transmission network for their free public television broadcasting services and should therefore be subject to the same exemption provision as the spectrum for broadcasting to the public.

The Administration’s Response and Decision

14. The Administration notes the rationale for determining LCA value on a case-by-case basis as this would reflect to the best degree the actual costs incurred by an operator in adopting the LCA. However, this approach would incur unacceptably high administrative cost, whereas the LCA value now determined based on the advice by the consultant is derived on the basis of a comprehensive costing model and is therefore

⁶ The 10 GHz “tipping point” in CSL’s submission was meant to be the tipping point between the two frequency ranges to which different SUF would apply. In the consultancy report, the SUF derived in relation to an FTNS licence for the 10 – 20 GHz range is HK\$ 4,436 per MHz per annum. The corresponding SUF derived for the 5 – 10 GHz range is HK\$2,936 per MHz per annum.

⁷ See paragraph 37 of the consultation paper.

also of useful reference value. Although a common SUF is taken for the same type of users for a frequency band, the common SUF will be reviewed on a regular basis of every five years (see Question 10 below). This would ensure that the SUF would be set at an appropriate level from time to time in accordance with the costs faced by the users of spectrum. As for CSL's concerns on fixed links operating in the 11 GHz band, the Administration, as per its proposal set out in the consultation paper, did concur with CSL's suggestion by proposing an SUF using the lower LCA value of the two ranges mentioned in footnote 6 (i.e. HK\$3,000, being rounded up from HK\$2,936, per MHz per annum). This has taken into account the similarity in the propagation characteristics (and hence the operational costs incurred) between 11 GHz and 10 GHz. On its request to clarify "exclusive use" of spectrum and under what circumstances would "exclusive" use be determined, "exclusive use" is readily defined to mean that no sharing of the assigned spectrum is granted⁸. Meanwhile, the principle of maximising spectrum efficiency is always taken into account in deciding whether to allocate spectrum for "exclusive use". As such, the Administration would always seek to allow spectrum sharing if technically feasible in order to promote efficient spectrum utilization. Concerning the cost components that are included in the SUF calculations, the Administration can readily confirm that capital costs and other relevant costs have already been taken into account in deriving the SUF.

⁸ For the avoidance of doubt, the TA may authorize other users to use the assigned spectrum provided that such other users shall be obliged under the relevant authorization not to cause harmful interference to use of the assigned spectrum.

15. Regarding the fixed links deployed by the free television broadcasters for programme feed purposes, they serve as backhauls to support the broadcasters' internal operational needs, and are no different from other usages of fixed links, such as those by other public telecommunications service providers. Alternatives such as the use of spectrum in higher frequency bands and leased lines are readily available. As such, the Administration is of the view that SUF should be applicable to the programme feed links of the television broadcasters.

16. Having considered the latest spectrum usage and demand trend, the Administration comes to the view that the list of congested bands identified in Question 3 above remains valid. **Accordingly, the Administration concludes that those frequency bands will be subject to SUF.**

17. The views presented in the various submissions have been duly considered by the Administration. **We note that the suggestions would either lead to serious practical difficulties (for calculating SUF on a case-by-case basis) or are against the principles of the charging scheme (for not charging broadcasters SUF on fixed links). Thus we decide to maintain the approach of setting the SUF and the levels of the SUF for the above bands, as per the proposal set out in the consultation paper.**

Question 4 : the Level of SUF for ENG/OB links

Do you agree with the approach on setting the SUF for congested frequency bands for ENG/OB links as mentioned in the consultation paper?

Note: The bands identified as congested are as follows –

2055 – 2095 MHz and 2200 – 2290 MHz

The Administration's proposal on SUF level is as follows –

- (a) Exclusive use: HK\$18,000 per MHz per annum
- (b) Non-exclusive use: HK\$9,000 per MHz per annum

The Submissions

18. While offering no specific comments on the approach to the setting of the SUF, ATV and TVB objected to any SUF levied on ENG/OB links, on the grounds that such links were used as part of the transmission network for their free public television broadcasting services and should therefore be subject to the same exemption provision as the spectrum for broadcasting to the public.

The Administration's Response and Decision

19. So long as the fixed links are deployed to serve as backhauled to support the users' internal operational needs, they should be subject to SUF, irrespective of whether the users are broadcasters or other fixed link

users. Moreover, of the 130 MHz spectrum in the two congested bands in total, 120 MHz has been assigned to four domestic TV broadcasters for ENG/OB link applications. In particular, to allow flexibility in accommodating more TV broadcasters in the congested bands, spectrum in the 2065 – 2085 MHz sub-band is being assigned on a shared basis and the user is required to share the spectrum with other authorized users should the need arise in the future. It should therefore be clear that the two bands in question are indeed very congested. The demand for ENG/OB links will surge if the three free TV licence applicants, whose applications are now being processed, are respectively granted a licence. It is thus justifiable to apply SUF to encourage the efficient use of the bands in question.

20. With the above in view, **the Administration concludes that the congested bands for ENG/OB links will be subject to SUF levels proposed in Question 4.**

Question 5 : the Level of SUF for Satellite Uplinks

Do you agree with the approach on setting the SUF for congested frequency bands for satellite uplinks as mentioned in the consultation paper?

Note: The Administration's proposal on the bands subject to SUF and their levels of SUF are as follows —

- (a) C-Band satellite uplink: HK\$350 per MHz per annum for 5875 – 6425 MHz band; and

(b) Other satellite uplink: HK\$3,000 per MHz per annum for 6425 – 7075 MHz band

Meanwhile, no SUF is proposed for bands for satellite downlink bands and bands for industrial, scientific and medical (“ISM”) use as they fall under the “commons approach” (see Question 1 above).

The Submissions

21. Three satellite uplink operators (AsiaSat, MEASAT and REACH) objected to the proposed SUF on satellite uplinks, on the grounds that practically no technical alternative is available as replacement. AsiaSat further questioned the differential treatment of SUF among satellite uplink bands (i.e. \$350 per MHz per annum for 5875 – 6425 MHz band and \$3,000 per MHz per annum for 6425 – 7075 MHz band), and asked how the congestion criteria would be applicable to frequency bands allocated for satellite uplinks. It considered the approach on calculating the concerned SUF level by reference to fixed link inappropriate. HKT supported the proposal that no SUF should apply to satellite downlink bands and those uplink bands overlapping with ISM usage (i.e. 5850 – 5875 MHz). It agreed with the SUF levels for the 5875– 5950 MHz and 6425 – 7075 MHz bands, but disagreed with the adoption of a sharing factor of 50 in SUF calculation for the 5950 – 6425 MHz band because the band is solely used for satellite uplink services.

The Administration's Response and Decision

22. The frequency bands concerned (i.e. 5875 – 6425 MHz and 6425 – 7075 MHz) are currently allocated for fixed link service and fixed satellite uplink service on a co-primary basis. Spectrum assigned for satellite link denies the use by fixed link users. Meanwhile, the bands are congested with over 75% of occupancy by fixed links and fixed satellite uplinks together. Thus, SUF should be applicable to all the above bands (see paragraph 10 above for the rationale). As regards the proposed level of the SUF, the SUF level for the satellite uplink is set by reference to the fixed link's value because it is an alternative use of the spectrum, which appropriately reflects the opportunity costs of the spectrum under concern.

23. In response to AsiaSat's query over why the proposed SUF on various satellite uplink bands would be different, the difference is due to a different sharing factor adopted. As to why different sharing factors are proposed, the consultation paper has made clear that it arises from the different sharing conditions imposed on fixed links, as outlined below -

- (a) a factor of 50 is used for sharing of spectrum in the band 5875 – 6425 MHz between satellite uplinks and fixed links on a non-protected and uncoordinated basis. On HKT's query about why a sharing factor of 50 is used for the band 5950 – 6425 MHz which is solely assigned for fixed satellite uplink service, the reason is that the TA may assign the

spectrum for fixed link service if he receives meritorious applications for such a spectrum use. Thus the same sharing factor is used for this band; and

- (b) a factor of 6 is used for sharing of spectrum in the band 6425 – 7075 MHz between satellite uplinks and fixed links on a protected and coordinated basis.

While the spectrum of 5850 – 6425 MHz is assigned on a non-protected and uncoordinated basis, the assignments for the band of 6425 – 7075 MHz are on a protected and coordinated basis. This explains the different sharing factors and why the latter would attract a higher SUF.

24. Having considered the grounds of the suggestions in the submissions, the Administration maintains that the congested frequency bands for satellite uplinks mentioned in Question 5 will be subject to SUF. The level of the SUF will be set with reference to the SUF for fixed links with the appropriate sharing factor taken into account. The levels of SUF will be as follows –

- (a) SUF will not be imposed on the spectrum in the 5850 – 5875 MHz band used by satellite uplinks or fixed links;**
- (b) SUF for C-band satellite uplinks in the 5875 – 6425 MHz band will be HK\$350 per MHz per annum. The same level of SUF is also applicable to fixed links that share such C-band uplink spectrum on a non-protected and uncoordinated basis; and**
- (c) SUF for satellite uplink in the 6425 – 7075 MHz band will be HK\$3,000 per MHz per annum.**

Question 6 : Annual Payment of SUF

Do you agree that SUF should be imposed as annual payment rather than collected as a lump sum when the licence period starts?

The Submissions

25. Most respondents (ATV, CSL, HKT, REACH, SmarTone and TVB) agreed with the annual payment approach. HTHK and SmarTone opined that an upfront lump sum payment option in the form of one-off payment throughout the entire licence period or a specified period should be allowed.

The Administration's Response and Decision

26. The Administration welcomes the positive feedback on the proposed annual payment approach. Spectrum users will be prompted to review on an on-going basis their use of spectrum⁹. If the need of the user diminishes, he can reduce his SUF payment when it is next due by returning the surplus spectrum to the TA for reassignment to other potential users. When compared with upfront lump sum payment, annual payment provides a better incentive for efficient spectrum use. Furthermore, upfront lump sum payment applicable to the whole licence period (15 years in the case of a carrier licensee) or a long specified

⁹ This has been explained in paragraph 51 of the consultation paper.

period will complicate the administrative procedure as the payment will likely cover a period beyond the review cycle of the SUF charging scheme every five years (please see the discussion in relation to Question 10 below). On balance, the Administration does not consider it advisable to make arrangement for the option of upfront lump sum payment.

27. The Administration considers it appropriate for SUF to be imposed once a year rather than once every licence cycle.

Question 7 : Assignment of Fixed Links Operated by Mobile Carriers under Unified Carrier (“UC”) Licence

Do you agree that fixed links operated by mobile carriers should be assigned under UC licence instead of Wideband Link Radio Services (“WBLRS”) licence and thus be charged with the relevant SUF accordingly?

The Submissions

28. CSL and HKT agreed that fixed links operated by mobile carriers should be assigned under UC licence. HKBN and SmarTone considered it unnecessary for these fixed links to be assigned under UC licence since the proposal to implement SUF would bring fees payable under the UC and WBLRS Licence on par for mobile carriers. CSL opined that mobile carriers and WBLRS licensees (other than mobile carriers) should be treated equally in respect of the fee payable for spectrum use.

The Administration's Response and Decision

29. Prior to the introduction of the UC licence regime, fixed links operated by mobile carriers are licensed under the WBLRS licence¹⁰. After the implementation of the UC licensing regime in August 2008, the Administration's policy is that all existing FTNS/FC licences and Mobile Carrier licences will be replaced by the UC Licence upon their expiry. Migration of the fixed links operated by mobile carriers from the WBLRS licence to the UC licence will therefore help streamline the licensing framework for both OFTA and the carrier licensees. Furthermore, the total fees payable (i.e. licence fee plus the proposed SUF) for fixed links operated by mobile carriers will be normalized to a fairly similar level under both the UC licences and the WBLRS licences¹¹. Under the proposed arrangement, mobile carriers will not therefore be worse off financially if they migrate their fixed links from the WBLRS licence to the UC licence.

30. **Having considered the views submitted and the rationale for aligning WBLRS licences held by mobile carriers with UC licences and the minimal financial impacts concerned, the Administration is of the view that fixed links operated by mobile carriers should be assigned under a UC licence (instead of a WBLRS licence). All existing WBLRS licence holders who are mobile carriers will be**

¹⁰ See paragraph 31 of the consultation paper.

¹¹ See paragraph 53 of the consultation paper.

required to migrate their fixed links to their respective UC licences upon the commencement of the SUF charging scheme.

Question 8 : Timing of Applying SUF

Do you agree that SUF should be applied to all users of the designated congested frequency bands irrespective of when the licence of the user is due for renewal?

The Submissions

31. All respondents offering comments on this question (including CSL, HKBN, HKT, HTHK and TVB) agreed that the proposed SUF charging scheme should have one effective date.

The Administration's Response and Decision

32. The Administration welcomes the unanimous support of the respondent. **We decide that where a given frequency band is designated to be subject to payment of SUF, all users of that frequency band will be charged from the same effective date, irrespective of when the licence is due for renewal.**

Question 9 : Transitional Arrangements

Do you agree with the transitional arrangements for implementing the SUF charging scheme as proposed in the consultation paper?

The Administration's proposal is as follows-

- (a) SUF would be introduced after a grace period of two years after the announcement of the SUF charging scheme;
- (b) after the two-year grace period, SUF would be introduced by a three-year phase-in approach, with 30% of the SUF imposed at the beginning of the third year, 70% at the beginning of the fourth year, moving on to the full payable amount for the fifth year and beyond; and
- (c) a one-off grant amounting to 10% of the annual SUF applicable to the spectrum use, or the actual cost incurred in migrating to other means of providing the services, whichever is the less, will be granted to these users if the spectrum is returned within the two-year grace period.

The Submissions

33. Some respondents (HKT, TVB and REACH) agreed to the proposed transitional arrangements in full. HKBN suggested applying different transitional arrangements to various frequency bands because users in the different bands may have different alternatives. ATV opined that the transitional period should be applicable whenever SUF is imposed on a frequency band in future, i.e. not only applicable at the kick-off of the SUF charging scheme. SmarTone opined that the overall transitional period should be shortened to three years while ATV suggested an extension of such a period to ten years. In contrast, CSL suggested three years for the grace period, based on the minimum notice

period for withdrawing assigned spectrum from a carrier licence.

The Administration's Response and Decision

34. The Administration notes that most respondents considered it appropriate to make arrangement for a five-year transitional period. The two-year grace period as proposed in the consultation paper follows the current practice of the TA for withdrawing all assignments of spectrum for operation of a carrier's network other than for connection between the network and the customers¹². Although HKBN has proposed different transitional arrangements for different bands, these would appear unduly complicated. Regarding ATV's proposal that the Administration should offer a new round of transitional period when SUF is imposed on a new frequency band in the future, it should be noted that the transitional arrangement is meant for the industry to better prepare itself and to adapt to the introduction of the new regulatory scheme. The proposed grace period plus the phase-in period should be more than sufficient for all spectrum users to get prepared and adjust to the new regulatory environment. In any case, pursuant to section 32G(2) of the TO, the TA is required to consult all the stakeholders if he is minded to designate under section 32I(1) a new frequency band in which the use of spectrum is subject to the payment of SUF. The industry will therefore have ample opportunities to make known its views and get prepared when the

¹² This is explained in paragraph 56 of the consultation paper. Also see the TA Statement on Minimum Notice Periods for Variation or Withdrawal of Spectrum Assignments issued in January 2008 at –

<http://www.ofta.gov.hk/en/tas/others/ta20080131.pdf>

TA proposes to designate a new frequency band under section 32I(1). This should obviate the need for yet another transitional period when SUF is imposed on a new frequency band.

35. The Administration intends to adopt the transitional arrangements for implementing the SUF charging scheme for spectrum assigned administratively (i.e. the grace period, the phase-in introduction of the SUF and the one-off grant arrangement) as proposed in the consultation paper.

Question 10 : Periodic Review of SUF Charging Scheme

Do you agree that SUF charging scheme should be reviewed every five years?

The Submissions

36. Most respondents (AsiaSat, ATV, CSL, HKT, TVB and REACH) agreed that SUF charging scheme should be reviewed every five years. SmarTone opined that annual reviews should be conducted. HTHK considered that SUF subject to review every five years would create uncertainty to a licensee, and an option to pay SUF in an upfront lump sum should be provided.

The Administration's Response and Decision

37. The majority of respondents agreed with a review cycle of five years. Conducting annual reviews, as proposed by SmarTone, would

pose unnecessary and time-consuming administrative burdens on both the Administration and the industry. As to the option of upfront lump sum payment, we disagree to including it, as discussed in paragraph 26 above.

38. With the above in view, the Administration decides that the SUF charging scheme will be reviewed every five years.

| |
|--------------|
| Other Issues |
|--------------|

39. The submissions raised issues other than the questions set out in the consultation paper. These issues and the Administration's responses are given at [Annex 1](#).

Way Forward

40. Having considered the views of the respondents, the Administration decides to proceed with the implementation of the SUF charging scheme for spectrum assigned administratively, based on the lists of frequency bands, SUF levels and implementation arrangements as mentioned in the preceding paragraphs.

41. Pursuant to section 32I of the TO, the TA will make an order to designate the frequency bands in which the use of spectrum is subject to the payment of SUF and the SCED will make the necessary regulation to

prescribe the level of SUF. The order and the regulation are subject to the negative vetting of the Legislative Council. Subject to this legislative process, it is anticipated that implementation of the SUF charging scheme for spectrum assigned administratively will commence in early 2012. The first SUF charging cycle will therefore take effect in early 2014, after the grace period of two years counting from the commencement day when the regulation concerned takes effect.

42. A summary of the designated frequency bands subject to SUF and the amount of SUF payable is given below –

| Designated Frequency Bands (MHz) | SUF per link (in HK\$/MHz/annum) | |
|----------------------------------|---|--|
| | Exclusive Use | Non-Exclusive Use |
| 2055 – 2095 | \$18,000 | \$9,000 |
| 2200 – 2290 | | |
| 5875 – 6425 | Not applicable | \$350 |
| 6425 – 7100 | \$30,000 for WBLRS licence, \$18,000 for other licences) | \$5,000 for WBLRS licence, \$3,000 for other licences |
| 7421 – 7900 | | |
| 7900 – 8000 | | |
| 8275 – 8500 | | |
| 10700 – 11700 | | |

**Commerce and Economic Development Bureau
(Communications and Technology Branch) and
Office of the Telecommunications Authority
23 September 2011**

Annex 1: Other Issues and Administration's Response

| Party | Issues raised | The Administration's Responses |
|-------|--|---|
| CSL | <ul style="list-style-type: none"> - OFTA should follow the Consultant's recommendations of conducting a review of some related policies and measures prior to implementing the SUF charging scheme, such as policies for access to hill-top sites, common basis for management fees of fixed link and possibly private mobile radio users, and charging SUF to government users. | <ul style="list-style-type: none"> - Review of such policies and measures should be considered separately and on their own merits. No justification to bundle the review of these subjects with, and hence lead to the delay in the implementation of, the SUF scheme. - Concerning access to hill-top sites, mobile network operators have already been allowed shared access to these sites for establishing microwave links to serve as backhails. - As for the issue of spectrum management fees, the Administration proposed in the consultation paper migrating the fixed links operated by mobile carriers from WBRLS licence to UC licence. This is a step towards moving to a common basis for the calculation of spectrum management fees for fixed links operated by carriers. - The Policy Framework already makes it clear that spectrum to be used by or on behalf of government will continue to be managed administratively and SUF will not be applied. The efficiency of the use of this spectrum will be reviewed by the TA every three years. The TA last completed such a review in January 2010 and published his report "Review on |

| Party | Issues raised | The Administration's Responses |
|-------|---|--|
| | <ul style="list-style-type: none"> - SUF implementation should be complemented by introduction of spectrum trading. | <p>Efficiency of the Use of Spectrum for Government Services”, as mentioned in paragraph 5 of the consultation paper.</p> <ul style="list-style-type: none"> - The industry is well aware that the Administration has commissioned a consultancy study on the feasibility of introducing spectrum trading and various related implementation issues. The Administration is evaluating the recommendations made by the consultants in proposing in due course the way-forward. |
| HKT | <ul style="list-style-type: none"> - The basis on which the Administration decides to assign spectrum administratively or via auction needs to be clarified. Congested bands could indicate the existence of competing demands, in which case the spectrum should be offered by auction. | <ul style="list-style-type: none"> - Radio spectrum that has competing demand has invariably been auctioned since the launch of the Policy Framework. In congested bands, users may not necessarily demand the same frequencies for exclusive use, but may instead just need a small amount of spectrum or share frequencies with other users through geographic segregation or other techniques, in which case no competing demand arises. For congested frequency bands/channels that have already been assigned administratively and are in use on a shared basis by a number of users, further assignment by auction is not reasonable or |

| Party | Issues raised | The Administration's Responses |
|-------|--|---|
| | <ul style="list-style-type: none"> <li data-bbox="322 663 1113 938">- Frequency bands for services provided under Universal Service Obligations (“USO”) should also be exempted from SUF payment, as an operator is obliged to offer basic service to customer anywhere in Hong Kong under USO regardless of the concerned service provisioning cost. <li data-bbox="322 1098 1113 1182">- Review of government spectrum use should be conducted more frequently. <li data-bbox="322 1241 1113 1326">- Long Run Average Incremental Cost (“LRAIC”) approach, which may result in a lower value to | <p data-bbox="1182 325 2051 555">practicable. In this respect, it is not proper or feasible to use auction to set SUF for spectrum in these congested bands. Such spectrum would need to be assigned administratively. SUF thereof would be derived by approaches other than auction such as LCA as per the Administration’s proposal.</p> <ul style="list-style-type: none"> <li data-bbox="1135 663 2051 1034">- The TA has examined carefully the radio spectrum currently deployed by PCCW for its fixed links. The TA is of the view that it is technically feasible for PCCW to deploy radio spectrum in the 12 GHz band or above to meet its operational requirement, thereby obviating the need to pay SUF. The transitional arrangement as described in paragraph 34 of the Statement should provide sufficient lead-time for PCCW to put in place such a change. <li data-bbox="1135 1098 2051 1182">- The current arrangement (i.e. three years interval between reviews) is considered sufficient and appropriate. <li data-bbox="1135 1241 2051 1326">- The Administration opines that LRAIC is not relevant in this context. This is the case because the calculations contained |

| Party | Issues raised | The Administration's Responses |
|-------|---|---|
| | calculate SUF level, should be used. | in the consultancy report are premised upon the assumption that there is no change in the service that is provided by an operator regardless of whether it is delivered through the use of spectrum or its alternatives. The concept of LRAIC, in contrast, is usually used to estimate the cost of adding an increment of service/product to an existing portfolio of services/products. As the question of whether or not to supply a new increment does not arise, there is no basis for invoking the concept of LRAIC to calculate the SUF level. |
| HCHK | <ul style="list-style-type: none"> - Outlying islands, villages in the New Territories and rural areas should be classified as remote areas. Service extension to such area should be covered by the SUF exemption on public policy grounds, and such exemption should be extended to fixed network operators. | <ul style="list-style-type: none"> - Please see the response to HKT on USO above. |

Radio Spectrum Policy Framework (April 2007)

1. Introduction

- 1.1 A 3-month public consultation has been conducted by the Commerce, Industry and Technology Bureau on the proposed spectrum policy framework. This document sets out for general information of the public the current policy thinking and key issues identified by the Government in relation to the management of radio spectrum in Hong Kong as a result of the public consultation.
- 1.2 This document is a living document and will be reviewed, revised, modified and updated from time to time by the Government as it thinks fit having regard to all relevant circumstances including but not limited to the latest technological, market and societal developments in Hong Kong and internationally, as well as further deliberations in key issues related to spectrum policy and management.
- 1.3 Readers of this document should seek independent professional advice in relation to the contents of, and any matters arising from, this document. Nothing in this document shall be construed or be relied upon by any person against the Government (including but not limited to all public officers) and the Telecommunications Authority (TA). All rights, powers, remedies and interests of the Government (including but not limited to all public officers) and the TA are hereby expressly reserved.

2. Spectrum Policy Objectives

- 2.1 Without prejudice to section 32G(1) of the Telecommunications Ordinance (Cap. 106) (TO), Hong Kong's spectrum policy and management aims to –
 - (a) facilitate the most economically and socially efficient use of spectrum with a view to attaining maximum benefit for the community;
 - (b) achieve technically efficient use of spectrum to facilitate the introduction of advanced and innovative communications services and strengthen Hong Kong's position as a telecommunications and broadcasting hub;
 - (c) fulfil Hong Kong's regional and international obligations relating to the use of spectrum;

- (d) strengthen Hong Kong's strategic position as a world city and the gateway between the Mainland of China and the world by facilitating the provision of key services in Hong Kong which are deployed, or will be deployed, globally or in the Mainland of China; and
- (e) ensure that necessary spectrum is reserved for services to be provided by or on behalf of the Government ("Government services").

3. Guiding Principle in Spectrum Management

- 3.1 The policy inclination is that a market-based approach¹ in spectrum management will be used for spectrum wherever TA considers that there are likely to be competing demands from providers of non-Government services, unless there are overriding public policy reasons to do otherwise.
- 3.2 If the market-based approach for managing spectrum with competing demands from providers of non-Government services will not be used, the relevant public policy reasons will be published.

4. Spectrum Rights

- 4.1 TA is empowered to vary or withdraw any spectrum assigned by reasonable notice under sections 32H(3) and (4) of the TO. Without affecting the generality of the powers which TA has, the policy inclination is that the said statutory power will be exercised only in exceptional circumstances before the expiry of a spectrum assignment under the TO, including where the public interest or international obligations of the Government so require, there is a serious breach of spectrum assignment conditions or serious interference between legitimate spectrum users has to be resolved or minimised.
- 4.2 There is no legitimate expectation that there will be any right of renewal or right of first refusal of any licence or spectrum assignment upon the expiry of a licence or spectrum assignment under the TO. The decision whether a new spectrum assignment, with the same or varied radio frequencies, should be given to the spectrum assignee would be made and notified to the spectrum assignee within a reasonable time before the expiry of its spectrum assignment or after receipt of its application by TA as it is

¹ "Market-based approach" for spectrum management means methods relying on market forces to ensure the efficient use of spectrum as a public resource.

applicable in the circumstances, after taking into account the spectrum policy objectives set out in paragraph 2 of this document as well as all other relevant factors, including but not limited to any other public interest considerations.

- 4.3 If a spectrum assignment is to be varied or withdrawn before the assignment expires, the spectrum assignee to be affected will be notified before the variation or withdrawal is to take place in accordance with sections 32H(3) and (4) of the TO. For this purpose, the TA may state minimum notice periods for different types of spectrum assignments. In the case of spectrum assignment to a carrier licensee for the provision of mobile or wireless carrier services, a notice period of not less than three years before the date of variation or withdrawal would be given insofar as it is practicable in the circumstances. If a spectrum assignment is to be renewed with different radio frequencies assigned, or not renewed upon the expiry of an assignment, notification would be given as mentioned in paragraph 4.2 above. If the circumstances permit, the minimum notice periods to be stated by TA would also apply in relation to these changes or non-renewal.
- 4.4 Before the conduct of a spectrum reforming exercise, an appraisal of the impacts of different options, including an option of “do nothing”, will be undertaken by TA before a decision is taken. The same minimum notice periods described in paragraph 4.3 above will be given to the affected spectrum assignees insofar as it is practicable in the circumstances.

5. Supply of Spectrum

- 5.1 A spectrum release plan (about the potential supply of spectrum from the TA through an open, competitive bidding or tendering process in the following three years) taking into account all relevant considerations, including spectrum policy objectives set out in paragraph 2 of this document, availability of spectrum for assignment primarily for non-government use, international spectrum allocation guidance, regional spectrum allocation decisions, technology and equipment availability, proposals from the industry, will be published annually. Such plans will be updated every year on a rolling basis or as required taking into account the latest developments. Pursuant to section 32I(1) of the TO, TA will designate by order the frequency bands in which the use of spectrum is subject to the payment of spectrum utilization fee by the users of the spectrum. Pursuant to section 32I(2) of the TO, Secretary for Commerce Industry and Technology (SCIT) will prescribe the method for determining the spectrum utilization fee payable for the use of such spectrum.

- 5.2 Information on unassigned spectrum for which supply exceeds demand, and can readily be made available for assignment upon application will be published and updated regularly by the TA.
- 5.3 The policy inclination is to introduce spectrum trading in Hong Kong in the long term, subject to a feasibility study and resolution of various implementation issues.
- 5.4 The policy inclination is not to introduce spectrum liberalization in the short-term. Developments in and effectiveness of spectrum liberalisation in jurisdictions with comparable circumstances to Hong Kong will be closely monitored for re-consideration in future whether spectrum liberalisation should be introduced in Hong Kong.

6. Spectrum for Government Services

- 6.1 Spectrum to be used by or on behalf of government will continue to be managed administratively. The market-based approach will not be applied.
- 6.2 The efficiency of the use of those spectrum will be reviewed by TA every three years.

7. Spectrum Pricing

- 7.1 In principle, Spectrum Utilisation Fee (SUF) will be applicable to all non-government use of spectrum.
- 7.2 For spectrum not released through auction or other market mechanisms prescribed by SCIT, SUF will be set by the SCIT under section 32I(2) of the TO. Without affecting any of the powers of SCIT, such SUF may be set to reflect the opportunity costs of the spectrum. Where a frequency band is assigned to a spectrum assignee wholly or significantly to support public interest purposes agreed by or at the request of the Government, SUF may be adjusted in the sole discretion of SCIT to reflect the nature of such use.

8. Transitional Arrangements

- 8.1 TA needs time to align the existing spectrum management arrangements with the content of this document. In the interim, the TA would continue to discharge his spectrum management responsibilities under the TO with a mix of the existing command

and control approach² and the market-based approach as appropriate in his reasonable opinion.

**Communications and Technology Branch
Commerce, Industry and Technology Bureau**

² “Command and control approach” for spectrum management is one where

- (a) the Government, or its agency, makes (or accepts from an international body) the allocation of a frequency band for a particular purpose;
- (b) spectrum within the band is assigned to a licensee or licensees via an administrative process;
- (c) a charge may be levied on licensees, normally to cover administrative costs; and
- (d) the licence usually authorizes the licensee to utilize spectrum-using equipment specified as to location, power and other variables, the restrictions being designed to avoid interference with other licensees in adjoining geographical areas or frequency bands.

Setting SUF using the least cost alternative (LCA) approach

The figure below shows the cost of the current means and the costs of two alternative means of delivering a service. Under the LCA approach, SUF is to be set at the difference between the cost of the lowest alternative means (i.e. Alternative 1) and the cost of current means (i.e. $SUF = \$4,000 - \$3,000 = \$1,000$).

