Our Ref.: TG15/240211/0010

24 February 2011

Office of the Telecommunications Authority
29/F, Wu Chung House
213 Queen's Road East
Wanchai,
HONG KONG
Fax: 2803 5113
Email: suf@ofta.gov.hk

Attention: Senior Telecommunications Engineer (Spectrum Planning)

Dear Sir,

AsiaSat views and comments on consultation on a possible Spectrum Utilization Fee for Spectrum Assigned Administratively

AsiaSat appreciates the opportunity to express its views on the consultation paper on Spectrum Utilization Fee for Spectrum Assigned Administratively (SUF). AsiaSat is primarily a satellite operator and therefore limits its comments and views to proposals having an impact on satellite communications.

Due to the limited geographical size of Hong Kong and its good telecomms infrastructure, use of satellites for domestic communication within Hong Kong is close to zero. However, Hong Kong has been very successful in establishing itself as a significant satellite communications hub, providing data and telecomm services to regional, international and mainland users via teleports in Hong Kong. Several pay TV operators in the region use Hong Kong as their hub to gather programs, edit and multiplex it and transmit via satellite to cable networks and individual receivers in the entire Asia-Pacific region. Also the cable and IPTV TV networks in Hong Kong rely on satellite distribution at their cable head-ends. Satellite links are also used extensively by broadcasters and pay TV operators in Hong Kong for Satellite News Gathering, program distribution and other occasional use transmissions.

..../2

Asia Satellite Telecommunications Company Limited
19/F, Sunning Plaza, 10 Hysan Avenue, Causeway Bay, Hong Kong
Telephone: +852 2500 0888 Facsimile: +852 2576 4111
Website: http://www.asiasat.com

TG15/240211/0010
24 February 2011

In addition to regional and international satellite users, Hong Kong also has a number of satellite operators which operate their satellites through purpose built control stations in Hong Kong. AsiaSat understands the rational for controlling frequency use within the territory of Hong Kong. However, satellite frequencies are assigned internationally, of course with countries free to disregard such allocations dependent on local conditions, but if a country wishes to utilise satellites for any purpose it has to block out the appropriate frequency from certain terrestrial uses. Thus as stated in the consultation paper, the real effect of the SUF process is to allow for satellites to exclude a block of frequency from the allocation process around the location of the earth station and by inference, the ability of the local administration entity to raise revenue. As OFTA has not stated that raising revenue is a prime motive, we are not sure how imposing SUF on the satellite uplinks changes the situation and encourages uplink providers to become efficient unless OFTA was of the opinion that all the satellite allocated frequency should be used for terrestrial applications.

It is important to understand that due to the complexity and cost of building a satellite, the global nature of satellite communications and the large number of countries served by one satellite, it is not possible to introduce local design to fit Hong Kong conditions for Hong Kong based satellite operators or satellite operators based outside Hong Kong whose satellites are used in Hong Kong.

Noting part of the motivation of the SUF is to «*encourage certain spectrum users to migrate to the alternative means of providing service*» and the inability for satellite links to change to other frequencies or bandwidths, the only migration possible would be for satellite users and satellite operators to move their teleports, hubs and control stations out of Hong Kong. AsiaSat does not believe this was the intent of the SUF. Quite the contrary, AsiaSat believes that Hong Kong should seek ways to attract satellite operators and satellite users to conduct their operation in Hong Kong for the benefit of the Hong Kong community as stated in the 2011 Budget Speech of the Financial Secretary.

...../3

TG15/240211/0010
24 February 2011

In the 2011Budget Speech delivered by the Financial Secretary regarding "Innovation and Technology", the Secretary clearly stated the objective of establishing Hong Kong as a telecommunication hub. It also stated the Government's action in exploring appropriate measures to facilitate the development of more high-end data centers in Hong Kong.

Thus, charging Hong Kong satellite operators and satellite users for SUF would make Hong Kong operators less competitive and this would be detrimental to Hong Kong's ability to remain or grow as a regional telecommunications hub.

For those satellite operators simply selling raw satellite transponder capacity and not involved in providing ground services, it would be possible to relocate the uplink/downlink earth stations while keeping a significant presence in Hong Kong, e.g. corporate headquarters, marketing etc. Other the other hand, for major satellite users such as teleport operators and pay TV operators, it might be impractical to move the uplink facilities out of Hong Kong while simultaneously keeping a presence in Hong Kong. A policy such as the SUF which effectively discourage satellite uplink from Hong Kong could prevent international broadcasters and telecommunication operators from selecting Hong Kong as their regional base.

Satellite networks are highly spectrum effective through the use of large, directional antennas that efficiently block emissions towards other satellites and terrestrial networks and therefore allow large frequency reuse. In respect of terrestrial networks, the prospect of reuse is further enhanced by the fact that earth stations in Hong Kong operate with a high elevation angle towards the Hong Kong based satellites which further minimizes interference to terrestrial networks and enhances the capability for frequency reuse by these. Moreover, the main earth stations in Hong Kong can be seen to be in locations where interference to terrestrial services will be minimal (Stanley fort and Cap d'Agilar on the south side of Hong Kong Island, overlooking the ocean; and Tai Po, surrounded by mountains). Just in respect of geostationary satellite networks, the same frequency can be reused up to 60-70 times from

...../4

TG15/240211/0010
24 February 2011

one single site. Given that satellite antennas can efficiently polarize its signals, this frequency reuse is doubled taking into account transmission on the two orthogonal polarizations. In addition to geostationary satellite networks, the same frequencies can be reused in respect of non-geostationary satellite networks as well as terrestrial networks, even further increasing the frequency reuse.

The frequency reuse capability enables two different antennas to work at the same frequency to the same satellite and as they are highly directional many antennas can establish links at the same frequency to different satellites . In fact if each antenna utilised a small portion of the satellite frequency working to the multiple satellites visible from Hong Kong, there is almost no limit to the number of satellite uplinks that could operate interference free in Hong Kong. Therefore, we believe there is no congestion per se and we fail to see a need to discourage satellite links by imposing a SUF charge. The only limiting factor to the number of satellite uplink antennas that could be based in Hong Kong would be based on the total bandwidth available on all the satellites visible from Hong Kong, and this number would be totally independent of any influence that could be exerted by an SUF charge.

It is recognized that it is difficult to find spectrum for new satellite networks in the geostationary arc in certain frequency bands. However, this is not a Hong Kong domestic problem, but an international problem where satellite networks registered in different countries will impact on each other and will limit the capability to successfully introduce new satellite networks in the same frequency band. When OFTA says that «*In general, a band could be considered as congested when further assignments for current use might cause harmful interference to existing users*», this problem cannot be solved by Hong Kong, but requires an international effort. And, there are already international rules and procedures in place to regulate and control this issue through the «Radio Regulations» of the International Telecommunication Union (ITU, a specialized agency of the United Nations). These rules and procedures are regularly reviewed and revised as required by the World Radio Conferences (WRCs) which are held approximately every 4 years. For Hong Kong to impose the SUF while other countries do not will definitely put Hong Kong at a disadvantage.

..../5

TG15/240211/0010
24 February 2011

In respect of the proposed frequency bands subject to SUF, AsiaSat agrees that it is impossible to apply SUF to receiving earth stations. In respect of the satellite uplink bands, AsiaSat questions how OFTA has determined that the 5850-7075 MHz bands are congested in Hong Kong. As mentioned above, it is true that it is diffucult to coordinate new satellite networks in portions of this band, but this is an international issue which is being dealt with by ITU. Domestically, AsiaSat cannot see any congestion in deploying new earth stations.

In respect of the criteria required to define a congested band:

- > 75% occupied;
- demand for using the band is expected to increase; and
- demand for new uses in the band are foreseen,

AsiaSat wonders which one of the criteria are met in respect of the 5850-7075 MHz band. As far as satellite uplinks are concerned, only a fraction of what could potentially be uplinked from Hong Kong is currently being used in Hong Kong. Moreover, AsiaSat believes that due to the difficulties to conduct international frequency coordination, there will not be a strong increase of uplinks in this band. The only remaining reason for applying SUF would then be if OFTA foresees a strong growth in the demand for this band for terrestrial applications and wants to clear the spectrum for these (i.e. getting rid of the satellite uplinks in Hong Kong). AsiaSat is not aware of any such near-future (the next three to five years according to OFTA) increased demand by the terrestrial side. AsiaSat therefore questions how OFTA has concluded that the 5850-7075 MHz band is «congested».

For the 5875-6425 MHz band, AsiaSat notes that throughout the world, FSS uplinks and microwave point-to-point links have been sharing the band quite successfully for many years. For terrestrial point-to-multipoint or point-to-area networks, sharing in the vicinity of FSS uplinks is more complicated.

..../6

TG15/240211/0010
24 February 2011

In respect of the 6425-7075 MHz band, AsiaSat notes that in the reasoning for proposing a SUF, OFTA argues that «*FSS in Hong Kong mostly operates in C-band while the other satellite bands are not so heavily used*» and this is used as a reason to impose SUF on C-band, but not on the other bands. Yet, within C-band, it is proposed that the 6425-7075 MHz band --which is very little used by satellite networks-- is subject to a ten times higher SUF than 5875-6425 MHz --which is more commonly used by satellite networks. This would seem to be in contradiction to the logic that bands that are less used should not be subject to SUF.

In respect of the level of the SUF for satellite uplinks, AsiaSat questions the approach to arrive at the proposed number. These numbers seem to be based upon an estimate of the cost of changing frequency of a microwave link, divided by an expected number of users sharing the same band within Hong Kong. AsiaSat questions if this is really relevant in determining the appropriate SUF for satellite uplinks.

Also, as mentioned for the 6425-7075 MHz band which is virtually unused in Hong Kong, OFTA proposes a ten times higher SUF than for the more commonly used 5875-6425 MHz band. This is despite the fact that technically, the sharing conditions with FS are the same and the conditions for frequency reuse for FS and FSS are the same. Also, AsiaSat is of the view that whether OFTA chooses to allocate a band to FS or not, this should not penalize satellite operators.

AsiaSat agrees that there is a need to have a periodic review of the SUF in the various frequency bands. A satellite typically has an orbital life in excess of 15 years and to build up a satellite business normally takes several satellite generations. To give satellite operators a certainty of the level of SUF in planning its satellites, a time period much longer than the proposed 5 years between reviews would be needed. However, AsiaSat can see that it would be impractical not to review the SUF for such extended time periods and agrees that a review around every 5 years would seem appropriate.

...../7

TG15/240211/0010
24 February 2011

One concern of AsiaSat is the manner in which the level of the SUF seems to be determined which may be seen as a way of keeping the money received for spectrum usage at the same level, rather than a way of motivating migration from really congested frequency bands. AsiaSat also notes with interest that administrative costs are among the factors to be taken into account in reviewing the SUF. AsiaSat would think this would be against the declared motivation for introducing the SUF. AsiaSat is also concerned that seeing the dramatic differences in SUF for satellite earth stations in frequency bands where the situation would seem to be the same, there is a possibility that a review of the SUF would lead to significant changes in its level, leading to economic uncertainty for satellite operators and satellite users.

In terms of the transitional arrangements laid out, AsiaSat does not have any particular comment. However, in addition to the above comments and questions, AsiaSat believes that there are a number of other questions in relation to the implementation of the SUF that should be clarified and answered. Some of these are:

1. How does OFTA plan to administrate the uplink fee cost and how is this going to be monitored?

2. Is the SUF foreseen to replace the current licence fees or is it foreseen to be an addition?

3. Is the SUF planned to be specific to one licencee, one site, one earth station antenna or one high power amplifier connected to one antenna through the output multiplexer?

4. If an operator has a licence, is it allowed to uplink from multiple sites for all its customers, towards multiple satellites?

5. Would the SUF be applied for a satellite operator having a satellite licenced through Hong Kong and also for a satellite user uplinking to this satellite (i.e. charging SUF twice for the same satellite uplink)?

...../8

TG15/240211/0010
24 February 2011

6. Will the same SUF be applied for continuous 24/7 transmissions as for Satellite News Gathering (SNG), program contribution links and other occacional uses?

7. Will an uplinker be charged according to the instantaneous use or according to the licenced potential operation (i.e. the full bandwidth)?

8. Uplink frequency use changes continuously over time. How is an uplinker going to record and how is OFTA going to audit the frequency spectrum usage?

9. Would a pure satellite licence which normally means transmissions of one telecommand per 2 MHz mean that the SUF for such a licence would be HKD 700 /year?

10. In the band 6725-7075 MHz, Hong Kong has its national Appendix 30B FSS allotment. Would OFTA foresee a SUF for implementation of this?

AsiaSat would appreciate if OFTA could take these comments and questions into account in determining whether or not, and how, to apply a SUF on satellite uplinks in Hong Kong and look forward to receiving OFTA's response to our comments and questions.

Yours faithfully,
Asia Satellite Telecommunications Co. Ltd.

Roger Tong
Vice President, Engineering

RT/PH/jl