

CASBAA Response to Consultation Paper on Arrangements for Assignment of the Spectrum in the 3.4 – 3.6 GHz Band for the Provision of Public Mobile Services and the Related Spectrum Utilisation Fee

CASBAA welcomes this opportunity to respond to the Consultation Paper.

Headquartered in Hong Kong, CASBAA is an Asian industry association with members and activities in 17 Asia-Pacific markets. The Association is dedicated to the promotion of multi-channel television via cable, satellite, broadband and wireless video networks across the Asia-Pacific region and represents about 100 corporations, which in turn serve more than 3 billion people. Member organisations with significant operations in Hong Kong include AsiaSat, APT Satellite, Asia Broadcast Satellite, Celestial Tiger Entertainment, Fox Network Group, Sony Pictures Television International, Turner International Asia Pacific, TV5MONDE, TVB, 21st Century Fox, and Time Warner. Further satellite member organisations include Eutelsat, Inmarsat, Intelsat, JSAT Corporation, MEASAT, SES, SpaceX and Thaicom.

CASBAA's response covers only those questions in the Consultation Paper of interest and relevance to the satellite industry – namely questions 6., 7., 8. and 9.

Protection of TT&C Stations

Question 6. Do you have any views on the proposed requirements [for Protection of TT&C Stations] as set out in paragraphs 29 to 31 above?

CASBAA welcomes the CA's understanding of the high priority need to protect satellite TT&C from harmful interference, and the possible drastic consequences of not doing so.

CASBAA welcomes the CA's proposal to impose restriction zones to protect the TT&C stations and functions for the Hong Kong satellite operators.

CASBAA welcomes the CA's proposal that "in case any operation of mobile base stations located outside the restriction zones cause desensitisation or other interference to the TT&C Stations, spectrum assignees shall be responsible for taking **all** necessary measures to prevent or rectify the situation, including removal of such mobile base stations as the last resort." (CASBAA's emphasis.)

One problem CASBAA identifies with this statement, however, is the lack of clarity on how mobile base station operators would come to know of such desensitisation or interference without clearly defined processes and procedures including emergency contact points, escalation etc.

If the satellite operators experience interference to TT&C, time is of the essence and delays of hours could be intolerable – in some cases, delays even of minutes could be intolerable, depending on whether critical communications or manoeuvres were in progress during the interference.

CASBAA believes it would be prudent to reduce the bandwidth of Frequency Block A1 to avoid direct co-frequency interference into the TT&C channel at 3.400 to 3.405 GHz.

CASBAA supports the CA's proposal that "in order to prevent inadvertent operation of mobile terminal or handset operating in the 3.5 GHz band from affecting the TT&C Station in the vicinity, spectrum assignees should take all necessary measures to avoid such interference, such as by adopting network-based solution to ensure that their mobile networks may force handover of connected mobile terminals or handsets operating in the 3.5 GHz band to other mobile base stations operating in other frequency bands when these mobile terminals or handsets are in the vicinity where the TT&C Station concerned is located." (CASBAA's emphasis.)

CASBAA supports the CA's proposal "to impose such requirements as conditions in the licences to be granted to the spectrum assignees."

CASBAA recommends that the CA provide clarification on liability for loss of or damage to satellite(s) and consequential losses to third parties, and for impairment of satellite services due to interference caused to TT&C. CASBAA does not think it reasonable that such liability should be born by relevant satellite TT&C operators. It should either be born by the relevant mobile operators individually, as a group, or by the Government of the Hong Kong SAR.

CASBAA recommends that CA reconsider its position that "In principle, the use of the 3.4 – 3.7 GHz band for TT&C functions and monitoring functions at the TT&C Stations would be allowed only at the aforesaid existing locations although, following frequency re-allocation, local satellite operators will not be entitled to claim protection for the continuance of any such monitoring functions at the TT&C Stations."¹ (CASBAA's emphasis.)

Monitoring of satellite status and service quality are essential functions for any satellite operator.

Some commercial contracts require monitoring to be carried out, including recording of or proof of transmission quality. There is little point in monitoring service quality if the monitoring activity cannot be protected from interference and disruption.

To effectively require that Hong Kong licensed satellite operators must carry out part of their essential functions outside Hong Kong is to emasculate their operations and competitive position and thus devalue their service offering.

If such monitoring is not to be protected, CASBAA proposes that the satellite operators are fully compensated for costs of monitoring elsewhere and conveying the monitored signals to Hong Kong.

¹ *Statement of the Communications Authority – Change in the Allocation of the 3.4 – 3.7 GHz Band from Fixed Satellite Service to Mobile Service*, 28 March 2018 para. 26, p10: https://www.coms-auth.hk/filemanager/statement/en/upload/441/ca_statements20180328_en.pdf

Subsidy Scheme to Support Upgrade of Existing SMATV Systems

Question 7. Do you have any views on the proposed subsidy scheme for the upgrade of existing SMATV systems, including the funding and administrative arrangements for issuing the amount of subsidies to the affected system owners/users?

CASBAA welcomes the fact that “the CA is mindful of the cost required for upgrading some 1 600 existing SMATV systems (which are serving some 890 000 outlets)” – representing over one third of all living quarters in Hong Kong^{2,3}.

CASBAA supports the CA’s position that “Since the prospective assignees of the spectrum in the 3.5 GHz band will benefit from this spectrum re-allocation, the CA considers that it is reasonable to require them to establish and administer a subsidy scheme for this purpose.”

CASBAA recommends that compensation for necessary upgrade costs of EFTNS, SPETS and other Hong Kong licensed earth stations also be covered by the subsidy scheme.

CASBAA accepts that the proposed budget cap covers the basic cost of insertion of a bandpass filter between feedhorn and LNB for applicable SMATV systems. However, CASBAA is concerned that the Consultancy Report⁴ gave no calculations to indicate the loss in antenna gain-to-noise-temperature, G/T and consequential loss in satellite link margin due to the insertion loss of the bandpass filter. Also, it did not appear to consider cases where a bandpass filter cannot be inserted between feedhorn and LNB for physical reasons, such as excess force on mounting supports and reflector due to weight of filter, leading to loss of focus. In either case, it is possible that some SMATV systems may need to have their receive antennas upgraded, which would be a much greater expense than the budget cap covers.

CASBAA cautions that the retrofit / upgrade process is required for all SMATV systems – let alone EFTNS and SPETS – and the skilled installer base in Hong Kong is limited. CASBAA recommends that, in order to minimise service disruptions due to 5G interference, it will be necessary for the mobile operators to share information on their base station rollout locations and timetable with the licensed SMATV operators, so that these can schedule retrofit / upgrade works in the vicinity of 5G base station rollouts ahead of the 5G rollout.

CASBAA does not object to the proposal that “All subsidy claims for the upgrade of the existing SMATV systems shall be made within one year from the launch of the subsidy scheme”. Given the limited skilled installer base, CASBAA proposes that claims for planned

² Hong Kong has 2.5347 million domestic households, 7.4098 million residents:
<https://www.censtatd.gov.hk/hkstat/sub/sp150.jsp?tableID=005&ID=0&productType=8>

³ Outlets in residential buildings, hotels, Universities/colleges/schools and hospitals – excluding commercial buildings, industrial buildings and others – constitute about 98% of all outlets: https://www.ofca.gov.hk/filemanager/ofca/en/content_295/eng_smatv.pdf

⁴ Consultancy Report on Assessments on and Recommendations to Enable the Electromagnetic Compatibility between Public Mobile Services and Fixed Satellite Service Operating in the C-Band:
https://www.ofca.gov.hk/filemanager/ofca/common/reports/consultancy/cr_201803_28_en.pdf

and costed but not completed upgrades also be paid, as it may not be feasible to retrofit / upgrade all SMATV systems within one year.

CASBAA supports the CA proposal “that prospective spectrum assignees should jointly set up and administer a fund for the purpose of subsidising the upgrade of eligible SMATV systems affected by the proposed spectrum re-allocation and assignment exercise,” and the funding and administrative arrangements for issuing the amount of subsidies to the affected system owners/users proposed in paragraph 35.

CASBAA recommends that details of the bandpass filters (e.g. manufacturer, model) considered in the Consultancy Report be made available to SMATV, EFTNS and SPETS service operators and other Hong Kong licensed earth station operators.

Technology Neutrality

Question 8. Do you have any views on the adoption of a technology neutral approach in respect of the use of spectrum in the 3.5 GHz band?

CASBAA fully supports the principle of a technology neutral approach, where the future “technology to be used is a widely recognised standard and will not cause any harmful interference to legitimate services,” and where such technology also causes less interference to other legitimate services than the first technology to be licensed – in this case 5G, per 3GPP standards.

It is a legitimate and reasonable expectation that as mobile services technology improves on its own service performance terms, it should also be required to improve in terms of reducing interference to other services.

Network and Service Rollout Obligation

Question 9. Do you have any views on the proposed network and service rollout obligations, as well as the associated performance bond to be imposed on successful bidders?

As suggested in its answer to Question 7., CASBAA recommends that the rollout obligations include sharing of base station rollout locations and timetable in a timely manner with all relevant licensed earth station operators: satellite operators, SMATV operators, EFTNS operators and SPETS operators, to enable these to schedule relevant retrofitting / upgrade works and to minimise satellite service disruptions.

Because of the many-to-many nature of such sharing, CASBAA recommends that centralised processes, procedures and systems be established to achieve this.

Additional Comments and Recommendations

The Consultation Paper covers protection of TT&C Stations and the Subsidy Scheme to Support Upgrade of Existing SMATV Systems, including what licensed SMATV (and EFTNS and SPETS) operators must do to be able to claim protection from any harmful interference from prospective public mobile services⁵.

However, it does not cover the responsibilities of mobile service operators to avoid interference into SMATV, EFTNS and SPETS systems.

CASBAA strongly recommends that planning, installation and commissioning guidelines for mobile base stations be developed and strictly followed. These should take into account the locations and characteristics of licensed earth stations that may receive interference and other mobile base stations that may also interfere into them. This is the most effective way to avoid unexpected, excessive and disruptive interference to licensed satellite services.

CASBAA strongly recommends that conclusions of and recommendations contained in the Consultancy Report and in the CA Statement including, but not limited to the spurious emission limit (-52 dBm/MHz), placement of mobile base station antennas relative to existing licensed SMATV, EFTNS and SPETS antennas (including the need to move the base station antenna up to 65 metres East or West of an initial location) and EIRP limit (50dBm) be imposed as conditions in the licences to be granted to the spectrum assignees.

CASBAA further recommends that OFCA specify a maximum aggregate spurious and out-of-band emission limit from 5G mobile into the 3.7-4.2 GHz band at the licensed satellite reception antennas as a planning criterion for placement of mobile base station antennas.

⁵ By reference to its *Information Note – Baseline Requirements for Satellite Master Antenna Television System Operating in the 3.7 – 4.2 GHz band*:

<https://www.coms-auth.hk/filemanager/statement/en/upload/440/i0012e.pdf>