



**Submission by the Cable and Satellite Broadcasting Association of Asia
(CASBAA)
To the Panel on Information Technology and Broadcasting
Legislative Council of the Hong Kong SAR
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Spectrum for Broadband Wireless vs. Satellite Services

This submission is made on behalf of the Cable and Satellite Broadcasting Association of Asia (CASBAA); we thank the Panel for the opportunity to present our organization's views.

Headquartered in Hong Kong, CASBAA is an industry association with members and activities in 15 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 some 120 corporations, which in turn serve more than 3 billion people. Member organizations with significant operations in Hong Kong include I-Cable, TVB Pay Vision, PCCW's now Broadband TV, Celestial Pictures, STAR Group, Time Warner, Turner Broadcasting International Asia Pacific, Sony Pictures Television International, Discovery Networks Asia, National Geographic Channel Asia, AsiaSat, APT Satellite, Asia Broadcast Satellite, IBM, Nokia, Sun Microsystems, Standard Chartered Bank, PricewaterhouseCoopers and Boeing Space Systems.

The Satellite Industry, Hong Kong, and Asia

Hong Kong is a hub of the Asian satellite and broadcasting industries. The ongoing growth and development of these twin industries brings major economic benefits to the SAR. We estimate that companies in these two sectors are responsible for creating around 2,500 high-paying posts in the international sector and another 10,000 jobs in local distribution platforms. With a forecast average growth of about 12% per annum over the next five years, this is a dynamic, high-tech industry that will continue to make a very important contribution to Hong Kong's economic growth for the foreseeable future – as long as the SAR continues the policies which have favored the industry's growth.

In that regard, we would like to put on the record the industry's deep appreciation for the professionalism and responsiveness displayed by OFTA in considering the C-band spectrum issue, which was absolutely critical for our business. We will return to this subject later in this presentation.

Because Hong Kong plays the role of a hub for the entire region, it is affected by regulatory decisions made in other countries. The economic benefits to Hong Kong from the broadcasting and satellite industries could be substantially reduced if inappropriate decisions are made by spectrum regulators attempting to hasten deployment of broadband wireless, or 4G mobile, services. For that reason, this submission discusses aspects of this question which are relevant throughout the region, and not only in Hong Kong.

Why talk about the broadcasting and satellite industries together? Satellites provide both the "backbone" and the "distribution network" that brings television broadcasting throughout the Asia-Pacific region. No other communication means has the reach, capacity and cost-effectiveness to deliver the burgeoning number of channels at growing levels of technical sophistication to hundreds of millions of Asian households.

Of course, satellites also deliver other services throughout Asia, including critical applications such as distance learning, telemedicine, universal access and disaster recovery. It is worth noting that C- band based satellite services were vital in facilitating clean up and recovery after the 2004 Asian tsunami disaster. When ground infrastructure was destroyed, satellites were used instead.

Spectrum for Satellites

Globally, satellites operate in several frequency bands according to allocations made many years ago by the International Telecommunications Union (ITU). Use of the so-called "C" band (3.4-4.2 GHz) is particularly predominant in Asia. The Ku-band (11-18 GHz) is also used, particularly for direct-to-home television transmissions, but its transmissions are susceptible to "rain fade" and in tropical and subtropical Asia, including Hong Kong, use of Ku-band for backbone transmission of "mission-critical" voice, data and video is judged not acceptable because of the risk of service interruptions in heavy rains.

C-band services are therefore used extensively throughout the world, and are particularly vital for regions susceptible to heavy rainfall. Signals in this band cover large areas. They are well adapted to provide voice, data, video services and internet connectivity in remote areas underserved by other communications means.

C-band satellite services share the same frequencies successfully with a number of terrestrial services, including domestic microwave links and aviation radar. This sharing is possible because those services operate from a limited number of fixed points, making mitigation or separation measures possible.

Experience has now made it abundantly clear that sharing with mobile broadband or voice services is not possible, because the latter are by definition ubiquitous and nomadic. If adjacent frequencies are used, one laptop moving within one or two kilometers of a satellite antenna can wipe out the ability of the satellite system to function.

Why is this? It is important to understand that a satellite dish is essentially a big ear, tuned to receive a “voice” that is speaking at a distance of 36,000 km. (That is the altitude of geosynchronous satellites.) Imagine trying to hear a person speaking across a football field, when suddenly the field fills up with people walking about, having their own conversations. It becomes impossible to hear the voice across the field because of the interference from the many other conversations. Similarly, satellite dishes lose the signal if the frequencies are used for wireless applications.

And, just as it won't matter whether those conversations on the football field are men or women (whose voices are at different pitches), it also doesn't matter whether the wireless applications are at slightly different frequencies. Testing has demonstrated that operation of wireless systems anywhere in the C-band wipes out the ability of satellites to function across the entire band. This is because of the great sensitivity of that satellite “ear” – its delicate instrumentation is overloaded and swamped by the interfering signals.

This is why attempts by some national authorities at “frequency segmentation” have not worked. And it is why the satellite industry has begun mobilizing to inform national and international regulators that sharing of the C-band between these very divergent technologies – wireless and satellite – is not possible. Regulators are forced to choose – if they put wireless applications in the C-band, it means the end of the viable satellite industry in those bands. In tropical areas, it could mean the end of a reliable satellite industry, period.

As tests of broadband wireless applications have begun in various countries, reports of cessations of satellite service have become more frequent. In countries as diverse as Fiji, Australia, Indonesia, the Philippines and Pakistan, customers' screens have gone blank when wireless systems began operating. A particularly clamorous case occurred when a wireless system started tests during last year's football World Cup, and cable companies in Bolivia lost the signal to thousands of customers. (The authorities there quickly suspended the wireless tests.)

A Better Alternative is Making Headway

Fortunately, regulatory authorities do not have to constrain their development of wireless broadband applications – there are other frequencies available which can be used for that purpose. One of the most common alternatives is the so-called “S-band” (2-4 GHz), which is already in widespread use. In Asia, 74% of all issued BWA/WiMax licences as of the end of last year were in S-band (72 out of 97 licences) and worldwide, 69% of all issued licences were in S-band (498 out of 721 licences). This is good news, and the trend is accelerating. This year, jurisdictions including Malaysia, the Philippines,

Taiwan, Thailand and Vietnam have announced their intentions to award broadband wireless licenses in the S-band.

Our industry strongly supports rollout and rapid commercialization of wireless applications, in frequencies other than the C-band. The S-band provides an excellent alternative. We believe that when use of these applications becomes widespread, our industry too will gain, as we are well placed to carry the “backhaul” signals to and from wireless transmitting nodes in many countries.

OFTA in Hong Kong has published a consultation paper proposing to use parts of the S-band for broadband wireless services – seeking public views on assignment of the 2.3-2.4 GHz and/or the 2.50-2.69 GHz band. Our association wishes to congratulate Hong Kong’s regulator for its responsiveness to our industry’s concerns. When OFTA originally proposed in 2005 using C-band frequencies for this purpose, we engaged them in a process of discussion and debate. They were open and accessible. They agreed to engage with us in a program of concrete testing. They evaluated the facts according to scientific criteria. And when the facts indicated that sharing the C-band was not possible, OFTA changed its mind, and found a better solution. This type of regulatory approach makes a major contribution to keeping our city an international hub. And we just wish that the Intellectual Property regulators would get with the program, too – their odious and barefaced toleration of signal piracy in Hong Kong only casts the city into disrepute, as unfriendly to the industries that make it their home.

The Next Threat to Satellite Services

A discussion of this issue would not be complete without a reference to the next threat coming down the road. Later this year, the ITU’s World Radiocommunication Conference (WRC-07) will consider proposals to identify C-band frequencies for use by future wireless telephony systems – the so-called IMT or 4G systems. These fully mobile systems would pose exactly the same threat to satellite services that Wimax and other wireless broadband applications would pose. The global satellite industry will oppose this identification, and urge the ITU to identify other frequencies for IMT applications. For Asia, a key watershed will be the meeting of the Asia-Pacific Telecommunity’s WRC preparatory group (APG) later this month in Busan, Korea. At that meeting, Asian regulators will be urged by satellite industry representatives to make *no change* in the C-band’s assignment to satellite services.

Hong Kong participates in the ITU and APT either as “Hong Kong, China” or through its membership in China’s delegation. In keeping with Hong Kong’s role as a regional hub, and the importance of our industries to Hong Kong’s economy, we would urge the SAR authorities to play an active role in defending the C-band which is so crucial to both the broadcasting and satellite industries based in this city. We stand ready to work with the relevant Hong Kong government agencies, even as we continue our dialogue with regulators from around the region.