SUBMISSION TO COMMERCE, INDUSTRY AND TECHNOLOGY BUREAU BY PCCW-HKT: SECOND CONSULTATION ON DIGITAL TERRESTRIAL BROADCASTING IN HONG KONG

PCCW-HKT (**PCCW**) welcomes the opportunity to comment on the Consultation Paper on Digital Terrestrial Broadcasting in Hong Kong (**the Second Consultation Paper**) issued by the Commerce, Industry and Technology Bureau (**CITB**) on 5 December 2003.

1. Executive Summary

- PCCW remains of the firm view that the introduction of digital terrestrial television (**DTT**) in the Hong Kong SAR (**Hong Kong**) at this time is premature and unnecessary. As outlined in the Second Consultation Paper, the decision on the DTT standard to apply in Mainland China (**the Mainland**) has been deferred. It must be recognised that the determination of such standard will have significant consequences for the future implementation of DTT in Hong Kong. Without certainty about this issue, consumers and broadcasters will be reluctant to make any significant investment in DTT conversion.

- As a separate but equally important issue, the unique circumstances of Hong Kong need to be recognised. PCCW is concerned that the Second Consultation Paper does not take into account these unique circumstances, which demonstrate that DTT is simply not needed nor demanded in Hong Kong, at least at this point in time.

- Hong Kong has a liberalised television market one of the highest penetrations of digital television (by satellite, cable and broadband) in the world. There is no cultural, economic or technological imperative for DTT.

- The high level of penetration of digital television means that Hong Kong is not "lagging behind" other countries in the digital television arena. The mere fact that Hong Kong has not yet implemented DTT has no bearing on Hong Kong's status as one of (if not the) leading telecommunications hub in the Asia-Pacific region.

- To the contrary, the very fact that Hong Kong has not rushed to implement DTT (which overseas experience has shown to be fraught with difficulty and failure) demonstrates that Hong Kong has to date taken a more innovative approach to digital television. In particular, the broadcasting industry has been encouraged to utilise delivery methods which are more appropriate to the Hong Kong environment than DTT (especially in the absence of the Mainland mandating a DTT standard). PCCW's submission is that this is the approach that should continue in Hong Kong.

- One of the most compelling reasons presented elsewhere in the world in support of the introduction of DTT is the improvements that DTT can provide audiences, in terms of

picture quality and sound. However, because of the relatively high penetration of cable and DSL in particular, the Hong Kong audience already enjoys high reception quality, and hence reception issues are far less compelling than they are elsewhere in the world. Also, to the extent that the coverage and quality of "free" domestic terrestrial television services (**free television**) needs to be enhanced, it should be noted that PCCW offers a readily available platform as a more efficient alternative to DTT.

- In this context, and consistent with the approach contained in Hong Kong legislation already in place, a technologically neutral approach to digital television in the Hong Kong environment is appropriate.

- To reiterate the above points:

    - the fact that Hong Kong audiences already have access to digital television services should not be under-stated; and

    - the fact that Hong Kong has approached the introduction of digital television in a far more innovative way than other jurisdictions (eg through now Broadband TV) should not be ignored.

- Further, even if DTT is introduced in the manner outlined in the Second Consultation Paper, it is likely to be of little benefit to audiences who live in multiple dwelling units (ie the majority of Hong Kong residents). As the CITB will be aware, and discussed at 6.1 below, the distribution of television reception within multiple dwelling units will continue to be in analog format therefore, any perceived improvements in reception quality will not translate in practice in those environments.

- PCCW is concerned that the introduction of DTT at this time and in the manner proposed by the Second Consultation Paper will ultimately result in a waste of consumer and industry resources, and scarce spectrum. By waiting for a determination of a DTT standard by the Mainland, Hong Kong can avoid the mistakes already experienced in other jurisdictions. By not introducing DTT at this time, Hong Kong will be able to work with that standard to implement DTT in a way that again demonstrates that it is at the forefront of modern, international technological developments.

2. Structure of Submission

As a guide to the structure of this submission:

- **Section 1** contains the Executive Summary;
- **Section 3** discusses the unique circumstances of the Hong Kong market, in comparison with other markets where DTT has been introduced;
- **Section 4** outlines the importance of appropriate standardisation;
- **Section 5** considers some public policy issues which would arise from the introduction of DTT in Hong Kong; and
- **Section 6** discusses why waiting for Mainland China to settle its DTT standard is a far more preferable option, one which will not adversely affect consumers in Hong Kong, and why it will promote Hong Kong's reputation as an innovative adaptor of new technologies.

3. Market Issues

Key Points

- There is no demonstrated need for DTT in Hong Kong.
- Hong Kong is already leading the world in digital television penetration.
- The Second Consultation Paper does not present a positive nor realistic picture of overseas DTT experience.

PCCW is concerned that this second consultation on the implementation of DTT in Hong Kong omits a detailed consideration of a fundamental issue: namely, the status of the market in Hong Kong for DTT; and the comparability of the Hong Kong market to other jurisdictions. In particular, we note that although the Second Consultation Paper refers to consideration of "the relevant market and technical developments in the last three years", there is limited analysis of the relevance of issues such as the current rate of digital television penetration in Hong Kong and its impact on the implementation and consumer acceptance of DTT.

PCCW therefore considers it critical for the CITB to examine and assess the state of the market in Hong Kong. It is appropriate to analyse whether the use of spectrum for DTT purposes at this

stage would be an appropriate and efficient use of the spectrum. Furthermore, the Second Consultation Paper presents a five-step "framework" for the introduction of DTT broadcasting which addresses what it considers to be the "major" regulatory considerations. These are limited to primarily technical and operational issues of frequency planning and standards, each of which is a necessary element to be determined. PCCW submits that this is an inadequate basis for a regulatory analysis of how DTT should be introduced in Hong Kong.

It is also concerning that the experience of DTT broadcasting in other jurisdictions, as depicted in the Annex to the Second Consultation Paper, has been based on information provided to the CITB which is deficient in many respects.

In this section, PCCW addresses the issues underlying the Second Consultation Paper's statement that, *"The benefits of DTT broadcasting are clear"*. While it is the case that DTT broadcasting has the capacity to provide new broadcasting features for end-users, PCCW believes it is mistaken to conclude that DTT broadcasting comprises a set of homogenous benefits which will automatically be delivered in Hong Kong.

(a) Digital television penetration in Hong Kong

The Second Consultation Paper notes that approximately 50% of Hong Kong Cable Television Limited subscribers are receiving digital services, and that other digital pay television services delivered either via broadband network or satellite have been launched over the past year. However, the Second Consultation Paper does not examine the total number of digital subscribers in Hong Kong and the implications of this take up for DTT development. PCCW's submission is that this must be a relevant consideration. OFTA's figures show that cable TV subscription is approximately 615,000 subscribers.[1]

Reliable figures on digital take up are fundamental for defining the market which will be occupied by DTT and the regulatory considerations which will necessarily follow. This has been recognised as an equally critical factor alongside the technical aspects of DTT implementation, for example:

> *"The introduction of new terrestrial television services is not just a technical matter…a number of other factors impinge upon the decision making process and most are non-technical. They include history, geography, politics and economics, and these factors lead to significant differences between the plans of even neighbouring countries."*[2]

---

1 OFTA, Telecommunications Indicators in Hong Kong (year ending 31 March 2003). Note that this figure refers to "households" rather than individuals.

2 Wilson, E, *Implementing Networks and Introducing Services in Digital Terrestrial TV in Europe*, European Broadcasting Union & DigiTAG, Switzerland.

This highlights three threshold issues which have not been addressed in the Second Consultation Paper:

(i) given that Hong Kong has one of the highest penetration rates in the world for digital television, there are limited robust economic imperatives for the introduction of DTT. No actual need or demand for DTT in Hong Kong has been identified;

(ii) the appropriate non-technical competition and regulatory issues associated with DTT have not been explored; and

(iii) the comparisons between DTT implementation in Hong Kong in comparison to the rest of the world are inappropriate. It needs to be acknowledged that Hong Kong is leading the world in digital television penetration, even if such services are not delivered as DTT services.

These factors point to the necessity to tailor the implementation of DTT in accordance with each market's unique characteristics. It is logical and sound from an economic and technical perspective to therefore base the decision on the implementation of DTT in Hong Kong having regard to such characteristics.

By way of illustration, and as further discussed at 5(d) below, the fact that there are alternatives to DTT as a means of improving coverage and quality of the free television services in Hong Kong needs to be taken into consideration before a decision is made to use scarce spectrum and resources for this purpose. In particular, the strong broadband infrastructure in Hong Kong needs to be taken into account.

It also needs to be noted that the high penetration rate of broadband-delivered services is at odds with one of the rationales for introducing DTT. That is, consumers already enjoy reception and sound quality of a level which is comparable with that available in a DTT environment. According to OFTA's statistics, customer broadband Internet access accounts have increased exponentially over the past three years from a level of 50,000 in February 2000 to over 1,230,000 by the end of 2003.[3] PCCW estimates that its Level 1 homepass rate for broadband is 95%, representing 54% of the Level 1 rate for November/December 2003.

The Hong Kong market therefore already enjoys the essential features of DTT which the Second Consultation Paper seeks to promote. From an economic and technical perspective, the need for DTT is largely negated by current and ongoing high growth of broadband accessibility.

---

[3] OFTA, *Statistics of Customers of Licensed Internet Service Providers in Hong Kong since March 1999.*

(b) European experience of DTT

The Second Consultation Paper makes several references to the European experience of DTT. However, PCCW notes there are several discrepancies in the information provided in the Annex to the Second Consultation Paper and the information about DTT promulgated by DigiTAG, the organisation that promotes DTT takeup on a global scale. For example:

- Germany: the Annex references the launch of DTT in a limited geographic part of Germany, namely the Berlin area. Although analog switch-off has been completed, as at August 2003 only around 180,000 set top boxes have been sold. In light of the analog switch-off and the fact that the population of Berlin is around 3.5 million[4], this is a particularly low take-up of DTT reception equipment.[5]

- France: the Annex states that DTT services are expected to be launched in 2004. DigiTAG notes that the creation of a viable environment for DTT in France remains uncertain.[6] It must be highlighted that the Annex refers only to the "expected" launch date of 2004;

- the Netherlands: DTT experience is quoted by reference to its target analog switch-off date. Note that the statistics for coverage in the Annex refers to only 50% of the geographic area, which does not necessarily translate to actual take-up;

- Italy: DTT technology is still being trialled in Italy. In late 2003 the Italian Parliament passed legislation that sets out the guidelines for the introduction of DTT, leading to analogue switch off in 2007. However, the legislation was rejected by the President following controversy over its bias towards Prime Minister Berlusconi's media holdings[7]. As at the date of this submission, it is understood that the position in Italy is still in a state of flux.

These facts highlight the unstable ground for the introduction of DTT in Hong Kong, were it to be based on the supposed success in other jurisdictions. As AsiaMedia has noted:

> *"Although countries such as Britain and Sweden launched digital television services in the late 1990s, they had only recorded single digit penetration rates because of the high cost of an HDTV set…*

---

4 http://userpage.chemie.fu-berlin.de/adressen/berlin.html; http://www.berlin.de/
5 http://www.digitag.org/dttmaps/globdttmaps.htm
6 http://www.digitag.org/dttmaps/globdttmaps.htm
7 www.dtg.org.uk

An HDTV can easily cost up to US$4,000, compared with less then $200 for most conventional sets".[8]

The imperatives for, and the resultant success of, DTT is a critical consideration. The Second Consultation Paper assumes that DTT is essential to maintain Hong Kong's lead and competitiveness in broadcasting and *"pave a solid way for introducing DTT broadcasting into Hong Kong"*. PCCW submits that the CITB cannot draw conclusions about the need for, the consumer demand for, nor the success of DTT based on the experience of European jurisdictions.

If it is considered desirable to refer to overseas experience, then the case of the planned implementation of DTT in Ireland is instructive. Ireland's motivation to focus on DTT is based on providing consumers with a more affordable option. For Ireland, this was a genuine concern that was responded to with a sound policy solution. As The World Bank has noted:

"*Ireland has decided to focus on digital terrestrial services because new digital terrestrial television (DTT) services could be offered at prices lower than existing analogue multichannel service providers. Nationwide, the capital cost per home passed might be as low as one-tenth of an equivalent service offered by modern cable or MMDS…"*[9]

Such a policy imperative does not exist in Hong Kong. In the absence of a compelling rationale for its introduction, the experience in Europe and the United States, as discussed below, points to the very probably failure of DTT in Hong Kong.

(c) Impact of DTT broadcasting in the United States

As early as 2001, commentators noted the limited impact of DTT in the United States:

"Somewhere on the way to digital terrestrial broadcasting, everybody's agenda changed. The result is that local TV stations and many major group owners have shelled out millions of dollars each to deploy about 200 DTV transmitters, but nobody is watching."[10]

PCCW is concerned that the CITB's desire to implement DTT is predicated on European experience, noted above, but particularly the comments in the Annex that:

---

8 *Hong Kong: Impatient Government Acts on Digital TV Plan*, South China Morning Post, 6 December 2003.

9 The World Bank, *Working Paper No. 11, Broadcasting and Development: Options for The World Bank*, 2003 at pp21-22.

10 Gerry Kaufhold, *Through the Pipe: Are You Being Served By Digital Terrestrial?*, Broadband Week, 16 April 2001.

"DTT implementation [is progressing] according to the following timetable set by the FCC in good progress".

The fact is that, contrary to the above representation that DTT has met with success in the United States, it has been a failure by any objective measure. PCCW is especially concerned that the CITB's focus appears to be limited to the technical implementation issues and the conversion from analog. However as noted above, these cannot be considered in isolation. The inevitability of the progression from analog may be true, however PCCW urges the CITB to consider the relevance of the overseas evidence, particularly from the United States, and measure this against the agenda for Hong Kong. It is instructive to note the comments from the Australian national broadcaster on this point, where digital conversion in Australia has also had a comparatively low uptake:

"The total conversion of television to digital delivery is inevitable, The time it will take to achieve this is an unknown variable that will depend on consumer take up, receiver availability and transmission infrastructure roll out. The take up will also be driven by how valuable the consumer finds the services."[11]

(d) Differentiation of Singapore

PCCW stresses that it is imperative to distinguish the implementation of DTT in Singapore from Europe, the United States and certainly Hong Kong. The demand for DTT has enabled innovative service offerings which are arguably expected as well as embraced by consumers, such as mobile digital TV on public transport. A consumer proposition for DTT was identified in Singapore prior to its introduction. Indeed, the Singapore Digital Television Technical Committee (**SDTTC**) considered DTT would play an important role in the demand for "viewers on the move" and was included in its terms of reference as:

(b) "Need for robust reception in moving vehicles given the possibility of transmitting of programmes for viewers on the move and information related applications…"

In contrast to the jurisdictions above, the success of DTT in Singapore has been documented on several levels:

"Digital TV was successful in Singapore. Not only is this spectrally efficient, but with the overlapping coverage this creates it allows a vehicle to move within the service area and receive the signal from one or more transmitters without interruption to the viewed signal.

---

[11] CJ Knowles, D*igital Terrestrial Television Broadcasting in Australia*, Australian Broadcasting Corporation (ABC)

In heavily built-up areas, such as central Singapore with close proximity to high-rise buildings, which create multiple reflections and signal blockage, use of an SFN is the only practical option to achieve perfect coverage."[12]

This is an example of DTT implementation responding to an identified need in a particular environment in Singapore. However, no such identified need has been presented in the case of Hong Kong. It is therefore highly unreliable to assume that DTT will be met with equivalent success in Hong Kong given that a comparable consumer proposition does not exist.

4. The importance of appropriate standardisation

Key points

- The determination of standards is in the interests of consumers and broadcasters alike.
- The Mainland is likely to vary DVB-T standard (to minimise payment of IP licence fees).
- There have been assumptions about frequency planning on the Mainland which may not prove correct.

In this section, PCCW addresses the issues arising from the approach adopted in the Second Consultation Paper in relation to technical standards.

4.1 The multiple incompatible variants of DVB-T

The Second Consultation Paper makes a number of statements about the "DVB-T standard". At the outset, it must be noted that there is no single DVB-T standard. DVB-T specifies the air interface and, through standards published by the European Technical Standards Institute, specifies a wide range of variants to deal with television programming requirements on a global basis. These variants include:

- Channel bandwidth – 6 megahertz, 7 megahertz and 8 megahertz;
- audio – MPEG-2 and Dolby AC3;
- screen ratio – 16 x 9 and 4 x 3; and
- definition – standard definition (480I or 576I) through to high definition (576P to 1080P).

[12] http://www.ntl.com/locales/gb/en/broadcast/mediasolutions/whitepapers/techp5.asp

That is, DVB-T covers a wide range of variants and provides for substantial incompatibility between decoders. The decoder itself must have a fixed channel bandwidth (that is, if it is to be at all affordable at the retail level). The decoder is unlikely to be compatible with both standard definition (SDTV) and high definition (HDTV) at the output stage (although the input de-multiplexer and video decoders may be able to cope with both). The output of the decoder must be able to cope with both the 4 x 3 and 16 x 9 aspect ratios.

However, the adoption in Europe of a directive to move to wide screen broadcasting has meant that the 4 x 3 option is not necessarily required in all markets. Finally, the two audio standards that have been adopted in DVB-T implementations around the world are largely incompatible. Although a single integrated circuit ("chip") can be used to decode both, the intellectual property right licensing issues that this raises are non trivial.

This means that, absent a national standardisation on audio, the consumer devices will be more expensive, reflecting the payment of intellectual property licences to both the core intellectual property holders for MPEG-2 audio and to Dolby Laboratories. This demonstrates why determination of standards is in the interests of consumers.

4.2 Issues of incompatibility with the Mainland

It is unlikely that the Mainland will choose a standard that is significantly different to the DVB-T standard proposed by CITB. However, it is possible that there will be at least some subtle differences or variants which are essentially designed to reduce the exposure to licence fees due to the core intellectual property rights holders of the DVB-T standard This fact is recognised by the DVB organisation itself.[13]

This approach is logical and should apply to the whole of China, including the Hong Kong Special Administrative Region, rather than the Mainland alone. Similar approaches, for example in the use of TD-SCDMA for the time division duplex allocations of 3G, have actually resulted in an export of intellectual property from the Mainland to other countries. The adoption by Siemens of the Chinese technological innovation has been followed closely by observers around the world. Indeed, the rigorous research and development completed by the Chong Qing Institute of Post and Telecommunications is likely to lead to an export market in TD-SCDMA handsets as well as technology.

The issue is whether the Mainland will adopt a standard which is based on the elements of DVB-T, particularly the use of coherent orthogonal frequency division multiplex in the air interface standard. In addition, there is an issue about whether standard may reduce the implementation cost and consumer cost, by reducing the intellectual property licence fees payable to European

[13] John Begini *An Overview of DTTB Around the World*, IBC Amsterdam, September 2003.

based trans-national corporations. This result is likely to be an attractive alternative for digital terrestrial broadcasters on a much broader scale.

This leaves Hong Kong in a difficult position. A decision by Hong Kong to adopt a standard that subsequently has to be rescinded will have a major detrimental impact on consumers. Worse, if Hong Kong stays with DVB-T at a time when other Asian countries, and particularly ASEAN countries, are exploiting the savings in intellectual property licensing costs that have been generated by Mainland innovation, then Hong Kong would become a case study in the introduction of inappropriate standardisation at an inappropriate time.

4.3 The consumer and broadcaster cost issues associated with standardisation

Some advantages associated with standardisation are discussed below. Benefits of standardisation arise for both vendors and purchasers from the economies of scope and scale associated with such standardisation. In the case of DTT, the economies come in two parts:

- for the broadcaster, a high availability of moderately priced production equipment which is compatible with DTT standards and modulators and transmitters, and which can accept an input from the broadcasting operation's facilities and deliver DTT services to consumers; and

- for consumers, who benefit from low cost reception equipment. This reception equipment will inevitably, in the first instance, be in the form of a decoder unit (or set top box). The output of the set top box will feed either a television or the audio-visual (home theatre) system in a consumer's home.

However, there are many legacy issues which will adversely affect Hong Kong's opportunity to take advantage of the standardisation benefits. In particular, Hong Kong has 8 megahertz wide television channels. This approach is different to the standard 7 megahertz UHF channels in Europe (excluding the United Kingdom and Ireland which have 8 megahertz channels) and the predominant use of 7 megahertz channels in other parts of the Asia Pacific region (notably Australia and New Zealand) which follow a European standard for analog television. This standard, phase alternating line (**PAL**) has its own variations. These include the stereo audio system which can be one of two variants. DTT standardisation aims to remove a number of these incompatibilities.

However, the proposed variants for Hong Kong are likely to be DVB-T using 8 megahertz channels and with no decision as to a sound standard This means, that using the approach proposed by CITB, ATV and TVB could separately adopt each of MPEG and Dolby AC3 audio and still meet CITB's requirements. That is, each of TVB and ATV could decide to differentiate

their product on the basis of the audio provided and eliminate the economies of scale (such that they are in Hong Kong) associated with consumer equipment by standardisation.

Standardisation only generates consumer benefits if it results in economies of scale. This means that the standardisation must be complete. The reason that the economies of scale are achieved is that standardisation is a regulatory intervention to replace the effects of competition (which would otherwise lead to a monopoly or duopoly based on proprietary standards). The option selected by CITB of mandating part of the standard, but somehow relying on market forces to complete the standard, is unsustainable.

True economies of scale for the Mainland and Hong Kong will come from the adoption by Hong Kong of standards set in the Mainland, and the economies of scale that are associated with a market of more than a billion people, rather than a market of 7 million people.

4.4 Interactions in digital terrestrial standardisation

Paragraph 11 of the Second Consultation Paper states that there is an agreed frequency plan between Hong Kong and the Mainland. However, such frequency planning only works if assumptions are made about the standard to be adopted by the Mainland. Whereas there has been substantial work on co-channel and adjacent channel interference between DVB-T and analog signals, and even DVB-T and Advanced Television Systems Committee (**ATSC**), until the Mainland has standardised its digital terrestrial television system, there can be no certainty of non-interference if DVB-T were to be adopted in Hong Kong.

Indeed, work by the Australian Broadcasting Authority shows that the co-channel performance of DVB is substantially better in relation to interference between analog and digital over ATSC. On the other hand, ATSC has substantial advantage in relation to digital to digital interference. In completing the frequency planning, the Hong Kong government must, necessarily, have assumed that the Mainland would operate a DVB-T system, in order to complete the planning process. If the Mainland were to adopt ATSC (recognising that this is not a likely outcome) then the frequency planning work that has been completed would need to be re-assessed.

In particular, the decision by CITB to operate signal frequency networks (**SFN**) is of particular concern in the presence of either:

(a) a non DVB co-channel digital interferer;

(b) an adjacent channel analog interferer; and

(c) a co-channel or adjacent channel non DVB digital interferer.

Even if the Mainland adopts DVB-T as its standard, there would be substantial merit in terms of efficient frequency allocation in the Mainland adopting a 7 megahertz UHF terrestrial standard. Although the 7 megahertz channels would initially be overlaid into existing 8 megahertz allocations, in the future, these could be re-farmed to the bottom end of the UHF broadcasting services bands and subsequently the upper spectrum could be released for either television or other purposes. It is not clear that the frequency planning that has been completed has taken this into account as the Second Consultation Paper provides no details.

PCCW would caution that its experience in these issues is that the potential for interference from a variety of sources in digital point to multi-point transmission systems (and particularly cellular radio) indicates that very detailed studies need to be completed in order to assure consumers that they will receive television signals at a signal to noise ratio that enables them to be enjoyed.

5. The role of DTT broadcasting in Hong Kong

Key points

- There is no compelling consumer proposition to encourage consumers to buy DTT reception equipment.
- Consumers will wish to wait for the Mainland's decision, even if the CITB does not.
- There are competition concerns about potential exercise of monopoly power by multiplex licensee.
- If the rollout of DTT is to be mandated in Hong Kong, rollout obligations should only be imposed upon free television services.

As outlined above, PCCW does not agree that the introduction of DTT in Hong Kong is necessary or desirable. Further, PCCW considers it important that the following public policy and competition issues be carefully considered before any decision is made about DTT in Hong Kong.

(a) Limited spectrum and disincentives to conversion

It is understood that the amount of spectrum available for DTT broadcasting in Hong Kong is quite limited, as a result of the current arrangement of analog channels, and as a result of planning co-ordination with the Mainland. The Second Consultation Paper explains that if its proposals are implemented, there will be five multiplexes available for the implementation of DTT

broadcasting in Hong Kong. It is understood that each multiplex can provide either four SDTV programmes or one HDTV program.

From this, it is understood that there will be a maximum of twenty SDTV terrestrial digital "channels" available to consumers (on the basis of the assumption that there may be up to four channels per multiplex). On the basis of the Second Consultation Paper, four of these channels will comprise simulcasts of the analog channels presently provided by ATV and TVB (as spectrum will be directly assigned for this purpose).

However, under the proposal, it is also appears to be open to the incumbent terrestrial/free television broadcasters to acquire the licences to all the multiplexes (under a competitive allocation system). This could occur if those broadcasters made a business decision to acquire spectrum to provide HDTV services, for example (eg HDTV simulcasts of their existing services). In effect, this would be an implementation of the "triplecast" model which has been implemented in Australia (where analog terrestrial television services are simulcast in SDTV, and also in HDTV during mandated periods). Were ATV and TVB to successfully bid for the new multiplex licences (as discussed below), the situation may arise where the equivalent of one multiplex is used to simulcast the existing analog services in SDTV, while the remaining multiplexes will be used to provide four HDTV services. This approach would potentially reduce the competitive threat that the introduction of DTT poses to the terrestrial/free television broadcasters.

Whether audiences are offered the prospect of four simulcast channels, and up to sixteen new channels, or four simulcast channels and four HDTV channels (depending on whether HDTV is implemented by the existing terrestrial/free television broadcasters, for example), the fundamental issue is: will this be sufficient to encourage Hong Kong consumers to purchase new reception equipment? In the context of the proposals put forward in the Second Consultation Paper, and in the context of overseas experience of HDTV, and in light of the fact that digital television is already available in Hong Kong via cable, satellite and broadband, we suggest that the answer to this question is "no".

As outlined at Section 3 of this submission, there is little overseas evidence to suggest that either offering will be of sufficient interest to the audience to encourage widespread adoption of DTT. As discussed, in Australia and the United States, the prospect of receiving programs in HDTV format has had a lukewarm reception from audiences, to say the least. The adoption of DTT in both those jurisdictions has been very disappointing. On the other hand, audiences in the United Kingdom were not sufficiently attracted to the offering of ITV Digital to make it a success – quite the contrary (as noted at 5(c) below).

Were DTT to proceed in Hong Kong in accordance with the proposals in the Second Consultation Paper, PCCW's submission is that the prospects of consumer adoption would be further diminished by the technical limitations of the proposal (as discussed at 4 above).

Assuming that Hong Kong consumers are properly informed about the approach proposed to be adopted, they should understand that if they purchase reception equipment, there are no guarantees that such equipment will be able to be used to receive all the digital channels (given that it is proposed that multiplex operators are proposed to be able to nominate their own transmission standards). Also, it can be assumed that consumers will understand that in the event that the Mainland adopts a different transmission standard to that which is implemented by multiplex licensees in Hong Kong, the reception equipment that they purchase will become redundant over a short period of time.

On this basis, in order for there to be any reasonable prospects of consumer adoption of DTT reception equipment in Hong Kong, consumers would need to have confidence that their investment in reception equipment will not be wasted., There needs to be a compelling reason for such investment. The proposal being suggested in the Second Consultation Paper would not, in our submission, give rise to such confidence or such compelling reason.

(b) Multiplex management: media concentration and control issues

The Second Consultation Paper has broadly adopted the multiplex licensing proposal that was set out in the First Consultation Paper (issued by the former Information Technology and Broadcasting Bureau in 2000). To summarise, it is proposed that multiplex operators will be licensed separately (under the *Telecommunications Ordinance*) from programme service providers (who will continue to be licensed under the *Broadcasting Ordinance*) and additional service providers. However, a key difference is that the restrictions proposed in the First Consultation Paper about the number of multiplexes that a multiplex operator might operate have been abandoned, and it is now proposed that the multiplex licences will be awarded through a competitive process.

It appears from the Second Consultation Paper that it is possible that this could result in all the multiplex facilities being acquired by the incumbent terrestrial broadcasters, which would potentially mean a more limited offering to the audience.

Alternatively, it could also mean that apart from those multiplex licences made available for simulcasting of the existing analog service, all the SFN multiplexes (and hence all the available DTT spectrum) could be acquired by a single operator. While this may reduce the potential problems arising from different operators adopting different technical standards, it would raise issues about the potential exercise of monopoly power. In order to ensure competitive costing and innovation in the supply of multiplex facilities to content providers (ie "television program service providers" and "additional service providers") in such circumstances, it would be desirable to avoid any entity becoming a monopoly supplier of such facilities, especially as the number of multiplexes available is small. However, it is not clear that this would be achieved through a competitive allocation process, particularly if such process was price-based.

The Second Consultation Paper does not discuss this issue. It appears that more considered thought is required about whether the exercise of monopoly power should be constrained in such circumstances, and how such constraints should be imposed.

(c) Failure of multiplex licensing in other jurisdictions

As a separate point, it is curious that the proposed licensing model in the Second Consultation Paper appears to be based on that model used to licence ITV Digital in the United Kingdom. It is noted that other jurisdictions (such as Australia) have not adopted a multiplex licensing model.

ITV Digital went into administration on 27 March 2002 and handed back its multiplex service licences to the then United Kingdom regulator, the Independent Television Commission. Its experience was an unmitigated failure. Like the model which is understood to be proposed for Hong Kong, ITV Digital originally offered a "manageable package" of new channels, intended to extend TV choice but not overwhelm viewers with vast numbers of extraneous channels. That plan was not successful.

This example seems to foreshadow what may occur in Hong Kong, particularly if different multiplex licensees adopt different technical standards, and there is no consumer confidence in the reception equipment that is initially offered for sale. In such circumstances, there is a real risk that Hong Kong would become another case study in how multiplex licensing schemes can fail.

(d) Frequency planning and coordination with Guangdong Province

As outlined above in Section 4, it cannot be assumed that the Mainland will adopt DVB as its standard for DTT. It appears that the DTT frequency planning and co-ordination that has occurred to date (eg with Guangdong province) has made this assumption. Thus real planning issues may arise in Hong Kong in the event that a different standard is adopted by the Mainland. If changes are required to be made in Hong Kong as a result, this will be damaging not only to consumer confidence in digital conversion, but also to broadcasters, who will be expected to make significant investments in infrastructure.

Ultimately, the question of what is the most efficient use of the spectrum and the most efficient use of broadcaster and consumer resources needs to be considered. It does not appear from the Second Consultation Paper that this issue has been properly addressed at this stage. In particular, PCCW suggests that if the coverage and quality of free television services needs to be enhanced, it should be recognised that PCCW offers a readily available platform. Utilisation of this platform would be a more efficient way of ensuring improved coverage by the domestic free TV licensees than DTT. PCCW's submission is that real consideration needs to be given to these kinds of alternative technological solutions - DTT is not the only way to provide digital television (as Hong Kong experience to date has demonstrated).

PCCW's submission is that in this context, the domestic free TV licensees should be encouraged to explore efficient alternative means of providing digital quality services. DTT is not the only solution to these issues (to the extent that they exist).

(e) Reasonable expectations of existing licensees

Another important public policy question is whether the proposed arrangements provide certainty not only for consumers (investing in reception equipment) but also for broadcasters, who will be expected to invest in production and transmission equipment. It is reasonable to suggest that organisations bidding for multiplex licences should be able to have some confidence in the future of DTT in Hong Kong. However, this does not appear possible under the model that has been proposed in the Second Consultation Paper.

There is so much uncertainty about the interaction between DTT services in Hong Kong and DTT services operating from the Mainland that it will be difficult for multiplex licensees to prepare long-term business plans with any certainty. It is not unreasonable for such licensees to expect coordination and consistency with the Mainland. Further, there is no compelling or demonstrated reason why the introduction of DTT in Hong Kong should not be delayed until such coordination is possible.

(f) Free television and mandating DTT rollout

Even if the Government considers that it is appropriate to mandate DTT rollout by 2008 or some later date, PCCW's submission is that such rollout obligations should only apply to domestic, free television services. It is important for a distinction to be made between domestic free television and domestic subscription television in this context.

PCCW's submission is that providers of subscription television services should be able to make their own decisions about how to best serve their subscribers. Providers of subscription television services need to assess the cost of providing digital services on the different delivery platforms against what their customers/subscribers are willing to pay. It is the result of that analysis that should drive how subscription digital television services are provided to subscribers (ie determining what platforms are utilised). As previously discussed, this approach has worked well in ensuring high levels of digital television penetration in Hong Kong to date, demonstrating that no regulatory intervention is warranted.

6. Why waiting for the Mainland does not adversely affect consumers

Key points

- DTT proposition does not translate to multiple dwelling units.
- Consumers will benefit from economies of scale and scope that come from adopting same standard as the Mainland.
- Existing home theatre experience means that DTT will need to offer a compelling consumer proposition in order to be adopted, yet none demonstrated.

The purpose of the following discussion is to demonstrate that Hong Kong consumers will not be disadvantaged if the introduction of DTT is delayed until the Mainland has finalised its approach to standardisation.

6.1 Terrestrial television set in the context of cable, SMATV and other delivery solutions

The Hong Kong television market is characterised by a large number of multiple dwelling units (apartments). In order to distribute television services to all flats in an apartment block, there are a number of possible alternatives:

(a) cable feed to the basement of the building and amplification and distribution by coaxial cable throughout the building;

(b) satellite reception and terrestrial reception at the roof of the building and associated distribution. In this case, each of the satellite and terrestrial channels is received, decoded and remodulated for distribution; or

(c) separate reception for each apartment.

Clearly, the last alternative is totally inappropriate and is not used in Hong Kong. The impact of the reception of satellite and terrestrial services and their subsequent remodulation in (b) above, is that the remodulation system determines whether the services received are digital or analog. That is, the introduction of DTT standards will not change the operation of SMATV roof-based head ends.

Buildings which are served by cable or telephone line maintain the digital status of signals from the basement to each apartment. This is not the case for roof-based head ends. Many of the major advantages of DTT (particularly in respect of high quality stereo audio) will be lost during the remodulation process. It would be possible to mandate that buildings reamplify and distribute DTT services on their broadcast channels. However, this would be a major change and increase the level of regulatory intervention into the lives of ordinary Hong Kong consumers.

The operation of SMATV systems also leads to a question as to whether the economies of scope and scale that would normally be associated with standardisation will occur in Hong Kong at all. The number of terrestrial antennas in Hong Kong is substantially smaller than the number of individual dwellings and is a small percentage of the number of televisions.

6.2 Cost implications arising out of the largest television market in the world

The Mainland has a rapidly growing economy and significant growth in disposable income. It also has an extraordinarily high percentage of homes with televisions given its per capita GDP. This is demonstrated by the statistics which show that, while China had more than 1.1 billion television viewers in 2002, up only slightly from the 1.09 billion in 1997, average viewing time has increased from 131 minutes to 174 minutes per day during the same period.

Average viewing time per day in the Mainland is comparable to all other countries with high television penetrations in the Asia Pacific region. Indeed, whereas research has shown a significant decline in television viewing in both Hong Kong and Singapore as a result of Internet use, China's television consumption is rising at 10% per year.

The economies of scope and scale that come from standardisation will manifest themselves in the Mainland market. The implication of this is that any standardisation (or quasi-standardisation – through the multiplex licensees nominating their own standards) by Hong Kong at this stage will simply result in Hong Kong consumers being left with obsolete and redundant set top boxes and televisions within months of the Mainland determining its DTT standard.

6.3 Transitional arrangements with set top boxes compared with complete digital televisions

As has been found in other countries, the initial deployment of DTT will be associated with digital set top boxes for consumers. In an environment where SMATV is so important, those set top boxes will be at the roof top head end. The impact of digital television would be much more widely felt if, instead of attempting to standardise DTT services, CITB were to campaign to update SMATV head ends from analog to digital.

This is a critical issue, however PCCW queries whether this issue has been considered in any detail in terms of its application to Hong Kong.

6.4 The impact of DVD and home theatre on the television viewing experience

A final reason why it is not necessary to implement DTT standards before the Mainland is the change in consumer behaviour with respect to audio visual services. There is a significant move (on a global basis) to have a "home theatre" environment to enjoy both visual and audio services. This arrangement is characterised as follows:

- large 16 by 9 display unit (plasma, LCD or rear projection);
- surround sound;
- DVD and/or VCD and CD; and
- VCR.

In order to build such a home theatre system, consumers must deal with standardisation at baseband. That is, the choice between composite and component video and between stereo, 5.1 or 6.1 audio. In Hong Kong, without mandating the use of SCART or RCA or, indeed, any other standard, hundreds of thousands of home theatre systems have been deployed.

Hong Kong consumers understand that DTT, along with SMATV satellite services, are at a lower video and audio quality than DVD movies. It will be a significant marketing issue to explain to consumers that DTT provides significant benefits in terms of quality, lack of ghosting and high definition, when the SMATV head end removes those benefits before the consumer even sees them. That is, the marketing that is consumer experience will adversely affect the acceptance of digital terrestrial television before it is widely deployed.

On the other hand, if standards are set in line with the Mainland's standards then the marketing impact will be favourable.

7. Conclusion

This submission has explained the reasons why PCCW does not believe that there is any demonstrated need for DTT to be introduced in Hong Kong at this stage, or possibly even at all.

Hong Kong already has digital television penetration rates that lead the world. DTT should only be introduced in Hong Kong if there is certainty about the standard to be adopted by the Mainland and if a compelling consumer proposition can be demonstrated (ie that will inspire consumers to purchase new equipment) and if a need for DTT becomes clear. None of these factors are evident at present.

In the event that a compelling consumer proposition can be developed in the future (and it is not yet clear what that may be), and in the event that DTT is introduced in Hong Kong to meet a demonstrated need, both consumers and broadcasters in Hong Kong will benefit from the certainty of knowing that the standard adopted in Hong Kong is consistent with that adopted by the Mainland. While the potential disadvantages of a Hong Kong standard (or multiple standards) that diverges with the Mainland are great, the potential benefits from a consistent approach with the Mainland are enormous (including the export of such technology to the rest of the world).

In the absence of a uniform approach with the Mainland, there is little to inspire the levels of consumer enthusiasm that are necessary for successful DTT conversion. For so long as the consumer proposition is a relatively small number of additional channels or HDTV, neither of these will of themselves be sufficient to encourage consumers to purchase reception equipment that may become redundant within a few years. Consumers will wish to wait for the Mainland's decision, even if the CITB is not presently minded to do so. Consumers will benefit from economies of scale and scope that come from adopting same standard as the Mainland. To proceed in the absence of such standard seems to be risky and unnecessary.

Accordingly, PCCW urges the CITB to reconsider the proposal contained in the Second Consultation Paper.

PCCW wishes to thank the CITB for its consideration of this submission.

PCCW
5 MARCH 2004