# SUPPLEMENTARY RESPONSE TO

# THE ITBB CONSULTATION PAPER ON

# DIGITAL TERRESTRIAL BROADCASTING IN HONG KONG

(Issued by the Information Technology and Broadcasting Bureau, 1 December 2000)

**Asia Television Limited** **Television Broadcasts Limited**

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## CONTENTS

# 1. Introduction

Further to our response submission of 26 February, Asia Television Limited (ATV) and Television Broadcasts Limited (TVB) would like to elaborate on our comments and suggestions on the Government's proposals concerning the development of Digital Terrestrial Television (DTT) in Hong Kong outlined in the *Digital Terrestrial Broadcasting in Hong Kong Consultation Paper* (Consultation Paper) issued by the Information Technology and Broadcasting Bureau (ITBB), 1 December, 2000.

## 1.1 Why would ATV and TVB care so much about DTT?

**Because ATV and TVB believe in the future of DTT.**

ATV and TVB strongly support the Government's efforts in steering Hong Kong into the digital age. There is no doubt that digitisation is a world trend and the future for the terrestrial television industry.

- **DTT should be a multimedia convergence platform.**
  To us, **DTT means more than merely adding more Standard Television (SDTV) programme channels to the multitude of channels offered by the existing cable, satellite and soon to be deployed pay TV services.**
  As ATV and TVB comprise the existing terrestrial TV industry, we would like to see a smooth transition from Analogue to Digital terrestrial TV in Hong Kong, that DTT successfully become the multimedia convergence platform and that most people in Hong Kong could enjoy the benefits brought about by such efficient and creative use of digital technology.

- More importantly for Hong Kong, the success of DTT would mean that this new technology could help to foster **more business opportunities** in terms of investments and diversity of businesses, especially Information Technology (IT)-related businesses.

- To these aims, we, ATV and TVB, have pooled our resources, terrestrial broadcasting know-how and engineering expertise. The joint-response submitted last month was our initial reaction to the Consultation Paper.

- We strongly believe that the public's interest is best served and our future business would thrive if we have a successful DTT industry, or rather, a

successful Digital Multimedia Industry.

- **We envision a Hong Kong where the masses could enjoy free enhanced TV and where multimedia services could be economical and affordable resources for entertainment as well as business enhancement tools**.

In this Supplementary Response, we would elaborate on the benefits for consumers, smooth transition and Hong Kong's IT and multimedia industry **if Hong Kong wait for The Mainland's decision on technical standard before making the decision** on which DTT standard and sound system to adopt.

We would also emphasise that **Smooth Transition should be the priority formulating DTT policies; and the seriousness of the problems of Channels (Ch) 35 and 37 and MFNs which could not be so easily solved by simply adjusting licence fees.**

## 2. Technical Standard

### 2.1 Why would ATV and TVB care about what DTT Technical Standard Hong Kong should adopt?

**Because we are responsible broadcasters and we want to point out that the Technical, Consumer and Economic/Market Benefits of waiting for a few months to see what the improved system being developed by the Mainland has to offer outweighs the claim for being a fast starter of digital TV.**

**2.1.1** Frankly speaking, as broadcasters, ATV and TVB would use whatever technical standard the authorities of the land had decided if we were network multiplex operators under the proposed licensing regime. **Besides, the new DTT standard only affects the transmission part of local broadcasts. As a regional broadcasting hub, Hong Kong is not behind in the digital realm since we already have satellite digital broadcasts transmitting from Hong Kong, e.g. TVBS's transmission (to Taiwan) began in mid-93, earlier than B-Sky-B of the U.K. Hong Kong has been exporting TV programmes in digital tape format since early 1990s. Furthermore, ATV's studios and TVB's new TV City would be prepared for digital productions. It is our aim that our production facilities would be almost fully digital in 2003.** If we were just programme providers we would not have to worry about the DTT standard or the transmission part of the broadcast.

**2.1.2** However, as responsible broadcasters, when our professional assessment and experience told us that it would make a difference for the future of the industry, we feel it is our obligation to the public we serve to make constructive comments and suggestions on the technical standard as well as frequency plans proposed.

**2.1.3** Also, after all, we would have to share the brunt of public complaints with the Government if there were frequent interference and interruption on existing free-to-air TV services.

### 2.2 What would be the benefits if Hong Kong wait to see what system the Mainland would adopt before deciding on our own DTT standard?

**Hong Kong's consumers, IT industry, market and economy as well as the broadcast and future multimedia industry would stand to gain, in terms of**

**Technical Benefits, Consumer Benefits and Economic and Market Benefits if we wait.**

## 2.3 Technical Benefits

**What are the technical benefits if Hong Kong wait to see what system the Mainland would adopt?**

### 2.3.1 It would make cross border frequency interference more manageable.

- **It would make frequency plan coordination with the Mainland easier if we have the same technical standard,** thus enable a smoother transition to digital TV in Hong Kong.
- A fundamental technical benefit would be if we have the same technical standard as our neighbouring areas, interference problems across the border would be easier to manage and control, a technical advantage elaborated by foreign experts invited to share their experience in digital broadcasting at the Symposium on "Digital Broadcasting & Convergence," (15 February, 2001) organised by the Broadcasting Authority and Office of the Telecommunications Authority[1]
- From the technical point of view, consumers would benefit from less interference and less disruption and inconvenience to their TV reception.

### 2.3.2 A better and more efficient system on the Horizon.

From our sources[2], the Mainland had been actively engaged in studying the different prevailing systems and information technology (IT) experts and broadcasts scientists have been studying the merits and demerits of the prevailing systems Advanced Television Systems Committee (ATSC) of the United States, Integrated Digital Broadcasting - Terrestrial (ISDB-T) of Japan and Digital Video Broadcasting - Terrestrial (DVB-T) of Europe, of which a variation that Hong Kong had proposed to adopt.

- **The Mainland's Timetable**

| | |
|---|---|
| **End of April 2001** | Deadline for digital TV systems/standards proposals |
| **May 2001** | Begin technical trails -- lab tests and field tests |
| **End of 2001** | Decide on the digital TV standard for the country |
| **2003** | Roll out digital TV broadcast |

♦ **The proposed new/improved DTT standards of the Mainland**

At least four proposed standards would be tested to compare with the three prevailing standards (DVB-T, ATSC, and ISDB-T) which would begin in May this year, in Beijing, Shanghai and Shenzhen.

i) **The Tsinghua University (Qinghua) Group Proposal -- DMB-T**

This is a system that had been discussed in broadcast engineering circles and of which we have the most information. **The Terrestrial Digital Multimedia Television Broadcasting (DMB-T)** is developed by Tsinghua University and a U.S. partner, Legend Silicon, after taking into account of the experience and shortcomings of the three prevailing systems. It could support Standard Definition TV (SDTV) and High Definition TV (HDTV) programme transmission, audio-visual multimedia data and mobile cellular telephone services, furthermore, mobile reception; and suitable for the deployment of Single Frequency Network (SFN) and Multiple Frequency Network (MFN). It would also have advantages of better mobile reception compared with prevailing systems.

ii) **The HDTV Technical Expert Executive Group (TEEG) Proposal**

The TEEG had proposed two standards: improved VSB (Vestigial Sideband) and improved COFDM (Coded Orthogonal Frequency-Division Modulation) versions.

iii) The **Academy of Broadcasting Science (ABS) Proposal**

The ABS proposal would also be an 8MHz system with 6MHz to be used for fixed reception and 2MHz for mobile reception.

**2.3.3 With a new and improved system on the horizon, should we wait?**

**Yes.**

## 2.4 <u>Consumer Benefits</u>

**2.4.1 Why can't Hong Kong consumers benefit from the widely used European DVB-T standard?**

**Because Hong Kong is adopting a Unique DVB-T system.**

♦ Although the DVB-T is defined as a standard, it allows a number of different variations in the area of sound encoding, channel bandwidth and OFDM (orthogonal frequency-division modulation) carriers.

For Example, the system implemented in the U.K. uses 8MHz channels, 2K

OFDM carriers and MPEG layer II (Musicam) sound encoding, whereas the system implemented in Australia uses 7MHz channels, 8K OFDM carriers and Dolby AC3 sound encoding.

This means that TV sets manufactured for one DVB-T market may not work in another and so the benefit of mass market manufacturing for Receivers and Set Top Boxes stated in the Consultation Paper is not realistic.

- The **consumer would not really enjoy a low-cost STBs or idTVs, as we were led to believe, if we adopt the "European system" DVB-T** because the unique combination of 8MHz DVB-T DTT standard with the Dolby AC-3 sound system would not be exactly the same as that of Europe nor the majority of the world's. STBs, idTVs and related multimedia software and consumer appliances would have to be specially designed and manufactured for such a small market of Hong Kong. What is a maximum of 3 million units in a normal cycle of 5-7 years, even if all TV households in Hong Kong had adopted digital TV (which would be unlikely during initial simulcast years) when compared with the potential 330 million of the Mainland's.

### 2.4.2 Bandwidth is only one consideration in choosing a DTT standard

- When choosing and deciding on which DTT standard to adopt, bandwidth and associating systems are those factors of consideration. It does not mean that any standard that uses 8MHz would be compatible with one another.
- The main consideration should be whether that standard would be best to serve the needs of the people of the land. **What should we consider?**
- **Is the standard efficient in its support for mobile reception?**
  Hong Kong is a business city. Hong Kong is a densely populated highrise-clad city. Hong Kong people are constantly on the move. Mobile phones have become almost a necessity for most. Hong Kong people want information instantaneously at their fingertips. Many people in Hong Kong travel frequently back and forth to the Mainland for business, family commitments and leisure.
- **Could the standard support HDTV and multimedia applications?**
  As DVB-T is a system developed for Europe with its vast number of countries, its main technical objective is to support multi-channels operations. Would they

develop special HDTV and multimedia applications and software just for Hong Kong?

- **Is there a growth potential for Hong Kong in terms of developing more efficient, quality multimedia services and generating more businesses?**

**2.4.3 With an improved system on the horizon, should we wait?**

**Yes.**

## 2.5 Economic and Market Benefits

**2.5.1 <u>The sooner Analogue transmission is switched off, the sooner we would have more frequency for more services for the market.</u>**

- **Again, we believe that the conditions for encouraging adoption of DTT would be inexpensive appliances and affordable quality enhanced TV services, such as HDTV, interactive programming, data links, mobile reception and other additional multimedia services. To the general public, especially in the initial stage, it would be the compelling experience of HDTV combined with some degree of interactivity that would encourage them to adopt the new technology.**

  Faster adoption of Digital TV would mean faster recovery of Analogue Spectrum and more frequencies could be freed up for more services.

**2.5.2 <u>The China Market would be an incentive for the development of Multimedia services</u>**

China is the largest TV receiver market in the world -- 330 million TV households. Hong Kong would stand to benefit by using the same DTT standard as the Mainland's. Apart from less expensive idTVs and STBs, the Mainland market potential could be the incentive for the development of many IT and multimedia industries and business in Hong Kong.

**2.5.3 <u>DTT could be the platform for multimedia convergence</u>**

When we are talking about DTT we are not talking about just television applications. Digital technology enables a vast diversity of media and services, with the in-home and mobile applications the different multimedia appliances and ancillary software and accessories etc. Hong Kong would have a higher hope for multimedia convergence using DTT as a platform and TV, a medium for such convergence to

take place. Data-links, Internet services via the DTT over-the-air broadband, digital radio broadcast/audio services combined with weather TV services, traffic news with a selection of music stations on the car-TV, going television-shopping while watching a drama series ... All these could be a reality for the people of Hong Kong, with all devices being affordable and the market potential of these services for Hong Kong and the whole of China.

### 2.5.4 Hong Kong's IT Industry Benefits

The faster Hong Kong could recover analogue spectrum, the more frequencies that we could free up for different digital multimedia usage, thus to provide more opportunities for new businesses and bring in competition etc.

The industry would also benefit from the vast R&D resources of China. In turn, Hong Kong could develop software applications and a diversity of IT related industries and businesses with the support of such a huge market. The vast market in China would be an incentive if not the reason for investment into the different TV-related multimedia businesses in Hong Kong. With that in mind, **whatever standard China adopts, it would be a technical standard with great multimedia business potential for Hong Kong**. Therefore, we believe that it would be better for Hong Kong to wait for the Mainland's decision on what technical standard to adopt, for the consumers, for the multimedia industry and Hong Kong, as pointed out by a Mainland telecommunications expert.[3]

### 2.6 What about Converters and Multi-System Appliances etc.?

**The use of converters, in the case of digital TV would be transcoders, from one standard to another will introduce unnecessary complexity to the Set Top Box (STB) and Receiver. This will result in increased costs to the consumer and less overall equipment reliability.**

**Also, digital standards are not as simple as the different sound frequency modulation within TV receivers for analogue multi-systems as in PAL, NTSC and SECAM. If the consumer have to use multi-system receivers, it would be costly, because of the duplication of all decoding devices.** Besides, if we were talking about multimedia applications, there would be many other connecting devices, appliances and software to consider.

**2.7 What about interoperability and compatibility with digital satellite and cable networks, since they are using DVB-S and DVB-C?**

**DVB-T, DVB-S and DVB-C, eventhough they are all called DVB, they have different modulation systems and they are not compatible. (DVB-S uses the QPSK modulation system and DVB-C, QAM.) Transcoders would have to be used at the receiving end anyway whatever terrestrial transmission were we to adopt.**

**2.8 What would Hong Kong lose if we do not wait and go ahead to decide on a DTT system as proposed by the Government?**

- **Hong Kong would lose the opportunity of knowing what the new and improved system of the Mainland has to offer.**
- **Hong Kong would lose the consumer benefits that adopting the same system as the Mainland's might have offered.**
- **Hong Kong would lose the benefits and opportunities for local IT industry, future DTT-multimedia industry, associating with the Mainland.**
- **Without the incentives of lower STB and idTV costs, the variety and affordable enhanced TV nor multimedia services, less Hong Kong consumers would be encouraged to adopt DTT and it would slow down the transition from analogue to digital TV.**
- **Slowing down of digital TV adoption would mean a slower recovery of analogue frequency spectrums and slower in opening up the entire DTT-multimedia market for more competition.**
- **Furthermore, with a different DTT standard as the Mainland's**
  **i) the task of frequency plan coordination with the Mainland authorities would be harder; and**
  **ii) there would probably be less frequencies available for use, i.e. less capacity for new programme and additional services, thus less players could participate in the DTT-multimedia market;**
  **iii) the task for managing interference across the Hong Kong Mainland border would be harder, thus, if there were interference problems, the**

**Government, future digital broadcasters and existing analogue broadcasters would all suffer the brunt of audience complaints;**

**iv) if so, a smooth transition would be hindered.**

**2.9 In Conclusion:**

**2.9.1 We believe that it would be better to have a cautious start than rushing into a decision that we might regret later**. **Haste makes waste.**

When we decide on a DTT standard and its accompanying sound system, they will be around for at least 20 years. What is 12-15 months of waiting to 20 years of inconvenience, problems and pining for the applications that might have been facilitated?

In short, **what would most benefit the consumers, competition, investors, and Hong Kong's reputation would not be who started DTT first, but who has the best possible plan to start with, and maximise the potentials of digital TV in the end,** in terms of:

- The smoothest and fastest transition from analogue to digital television;
- The fastest in recovering all analogue spectrums and fully utilising the frequencies for the best possible multimedia services;
- The foresight and insight as to which standard to use that would enable convergence of the different multimedia applications and enhanced TV services;
- The **number** and **diversity** of **successful** multimedia businesses and DTT industry generated from flexible market-oriented policies and licensing regimes;
- The number of people, consumers as well as TV viewers benefited from the enriched value-added services such as HDTV, portable TV, mobile TV-telephone-data services, interactive TV, etc.; and
- Most important of all, the number of people, mass consumers, could enjoy a wide range of entertainment, information and education options offered by FREE enhanced TV and the benefits of affordable low cost multimedia appliances and services which would in turn enrich their lives or enable them to succeed in their own businesses.

## 3. Smooth Transition from Analogue to Digital TV

### 3.1 Why are we so concerned about the frequency plan proposed?

**Because we have grave reservations as to whether the proposed frequency plan is workable and feasible.**

**3.1.1 We are not asking the Government to arbitrarily limit the number of multiplex to deploy for our benefits. We have foreseen the problems involved in the existing frequency plan and proposed deployment because:**

- The frequency plan had been mapped out without finalising the frequency plan coordination with Mainland authorities -- the plan might not be realised at all.
- The proposed frequency distribution and networks had not taken into the condition that if they are fully deployed, there would be potential interference to existing Analogue Services.
- ATV and TVB urge the Government to ensure that Smooth Transition be the Priority in introducing DTT in Hong Kong. The final frequency plan, the allocation of frequencies for network multiplexes and the number of multiplexes to be deployed should cause the least inconvenience and disruption to the public as possible.

### 3.2 Why should we form a Government-Industry DTT Smooth Transition Advisory Committee?

**Because, as experienced broadcasters we anticipated the work required to facilitate a smooth transition.**

- The Advisory Committee's capacity would be to formulate directional references to ensure that the transition would be smooth and cause the least inconvenience to the public in terms of the least disruption to their TV reception, whether digital or analogue.
- We are not suggesting that we would be sitting at the negotiation table with Chinese Authorities on Frequency Plan coordination. But rather, we would like the Government to formalise the continuous consultation process so that the transition process would benefit from the experience and expertise of industry practitioners. Since Frequency Planning Coordination with Mainland Authorities

might affect existing analogue frequencies, we suggest that consultation with existing analogue broadcasters would enable our engineers to contribute to the future success of the digital terrestrial multimedia industry in Hong Kong.

## 4. Problems Concerning Ch 35 and 37 and MFNs

**4.1** We, ATV and TVB, believe **that the Government had gravely under-estimated the problems** that would be caused by deploying Ch 35 and Ch 37 for digital Single Frequency Network Multiplexes (SFNs) and the inequity in terms of coverage and service potential of the different multiplexes, especially on Multiple Frequency Networks (MFNs).

**4.2 Utilising Ch35 &37 for digital TV would be a huge problem in Hong Kong because:**

- Tuning TV and VCR frequency is no simple matter for the average audience.
- The problem is complicated by the fact that different areas are tuned to different transmitters;
- Furthermore, the use of frequencies in each in-building cable TV systems would be different.
- It would be almost impossible and very time-consuming for an ordinary viewer to retune their TV receivers and VCRs at the initial simulcast stage.

**4.3 Can the tuning problems be solved?**

**4.3.1** It can be solved of course -- if you calculate HK$400 for labour and material costs per technician's visit per household. Is the consumer responsible for the retuning cost? If so, the burden of transition would be on the consumer. Is the multiplex operator concerned responsible for the cost? If so it would be HK$400 x 2.3 million households (hh), **adding HK$920 million to their start-up cost**.

**4.4 <u>Who would pay for the cost of retuning?</u>**

**In Japan, the Government had proposed to spend US$ 106 million dollars in subsidies (to help pay for changes required to adjust to the newly-allocated frequencies) to facilitate the transition from Analogue to Digital TV[4], would the Hong Kong Government be responsible for this?**

**4.5** For **MFN** multiplexes which could not achieve territory-wide coverage, that would mean less business opportunities.

**4.5.1** Existing analogue transposers need to be switched off to form the MFNs**.** If,

for illustration purposes, 10% of households were affected, and if MFN operators were to provide STBs for viewers to receive their digital free TV signals, and assuming a STB cost of around US$300 per box, it would mean **US$69 million, i.e. HK$ 538.2 million, added to the start-up cost of these MFN operators**.

**4.5.2 It is extremely doubtful whether any adjustment to licence fees could justify such inequality in business conditions.**

## 5. Conclusion and Suggestion

**5.1** With the above supplementary comments and suggestions to our response, we, ATV and TVB, would like to express, once again, our concern over the Government's DTT proposals.

**5.2** We urge the Government to consider waiting for the Mainland's decision before deciding on the DTT standard and sound system for Hong Kong.

- We would like to realise a smooth transition from analogue to digital television.
- We would like to see the people of Hong Kong enjoying the free enhanced TV and multimedia services brought about by low-cost appliances, affordable multimedia services benefited indirectly from the vast China Market.
- We would like to see Hong Kong benefiting by the development of diversified IT/Multimedia businesses that could capture the business opportunities and potentials offered by the Mainland as well as the local market.

**5.3 We are proposing that the government should wait until the Mainland, China, had decided on their DTT standard or until the end of 2002 whichever comes first before deciding on the DTT standard for Hong Kong, if it is considered that a time frame had to be set.**

**5. 4** As we have stated in our response on 26 February, **we believe that the Government is earnest in its consultation process and keen on developing a robust DTT industry for Hong Kong.**

**5.5 Once Again, ATV and TVB would like to offer our experience and expertise in terrestrial broadcasting and contribute to the success of the new DTT-multimedia industry. We would continue to do our best in providing constructive comments and practical advice at any stage of the Government's DTT frequency planning, coordination and policy formation, in advisory committees or other consultations.**

## Endnotes

[1] "Experts Pointed Out That Neighbouring Areas Should Adopt the Same Digital TV Standard," in *The Hong Kong Economic Journal*, 17-2-2001.

[2] Information composite, from discussions with Mainland broadcast engineers and experts and publications: Zhang, Haitao (2000). "A Glance of China's Tenth 'Five-year Plan' for Broadcasts," *International Broadcast Information,* 10-2000, Vol. 14 No. 10, pp 42-43.; Yang, Zhixing (2000). "DMB-T Protocol," *International Broadcast Information,* 11-2000, Vol. 14 No.11, pp 19-24; Liu, Sunray, Yoshida, Junko, & Leopold, George (2001). "China Could Leapfrog World With DTV Spec" from *EE Times*, 29-01-2001, in www.dtg.org.uk/news/world/china_dtv.htm.

[3] Ng, Wai Han Katherine. (2001) "Mainland Research on Digital TV Standard, Hong Kong Hard to Ignore: Different from European Standard Proposed for Hong Kong, Expected To Be Finalised Latter Half of the Year," in *Hong Kong Economic Times*, 2-4-2001.

[4] *NAB World.* 2-2001, p. 4.