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香港中環花園道
美利大廈一至二樓

COMMUNICATIONS AND TECHNOLOGY BRANCH
COMMERCE, INDUSTRY AND TECHNOLOGY BUREAU
1/F–2/F Murray Building
Garden Road
Central, Hong Kong

本局檔號 OUR REF :
來函檔號 YOUR REF : CB1/PL/ITB
電 話 TEL. NO. : 2189 2236
傳 真 FAXLINE : 2511 1458
電子郵件 E-mail Address: echeung@citb.gov.hk

By Fax
(Fax No. 2121 0420)

4 July 2006

Clerk to Panel on
Information Technology and Broadcasting
Legislative Council Building
8 Jackson Road
Central
Hong Kong
(Attn: Mr Paul Woo)

Dear Mr Woo,

Panel on Information Technology and Broadcasting
Meeting to be held on 18 July 2006

I refer to your letter dated 27 June 2006.

We issued a Legislative Council Brief on 29 March 2006 to provide the Council with a detailed update on the progress of the implementation of digital terrestrial television broadcasting. A copy of the Brief is attached.

Since then, Asia Television Limited and Television Broadcasts Limited have obtained the planning permission from the Town Planning Board and other approvals from relevant government departments for the construction of transmission stations at Temple Hill and Golden Hill. The two broadcasters are working on the design and planning for the construction of other transmission stations.

The Commerce, Industry and Technology Bureau has launched a dedicated website on digital terrestrial television (http://www.digitaltv.gov.hk). We will update the website from time to time to inform the public of the progress of the project.

...../P.2

We envisage that we will brief the Council again in early 2007 after the Government has approved the technical standard adopted for digital terrestrial television transmission.

Best regards,

Yours sincerely,

(Eddie Cheung)
for Secretary for Commerce, Industry and Technology

Encl.

c.c.

AA/SCIT

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LEGISLATIVE COUNCIL BRIEF

IMPLEMENTATION FRAMEWORK FOR DIGITAL TERRESTRIAL TELEVISION BROADCASTING IN HONG KONG

PURPOSE

This paper informs Members of the Legislative Council of the progress on the implementation of digital terrestrial television (DTT) broadcasting and the action the Government would need to take to ensure a smooth digital switchover.

BACKGROUND

2. The Secretary for Commerce, Industry and Technology announced on 9 July 2004 the implementation framework for DTT broadcasting (at **Annex A**) with the following major milestones:

A

- by 2007 Asia Television Limited (ATV) and Television Broadcasts Limited (TVB) shall start broadcasting their existing services in both analogue and digital format (simulcasting) and launch a new digital service on the respective additional frequency channel assigned to them;

- ATV and TVB shall extend the coverage of their digital networks to at least 75% of Hong Kong by 2008;

- If the Mainland has not promulgated a national standard before end of 2006, ATV and TVB will adopt the European DVB-T standard which has been widely adopted internationally;

- subject to confirmation of technical feasibility of using the single-frequency network for DTT broadcasting by ATV and TVB (probably by 2008), the Administration will consider the disposal of the two multiplexes[Note] kept in reserve; and

[Note] A multiplex is a transmission channel for DTT broadcasting. It has the capacity of carrying four standard definition TV programme channels (and therefore can support multi-channel broadcasting) or one high definition TV programme channel at a time. An operator may switch from multi-channel broadcasting to high definition TV broadcasting and vice versa at different timeslots.

- subject to further market and technical studies, the Government will direct ATV and TVB to switch off analogue broadcasting within five years after the commencement of simulcast, i.e., by 2012.

OVERALL PLANNING

Three Phases

3. The implementation of DTT broadcasting can be broadly divided into the following three phases:

Phase 1 (2004 – 2008)	Realization of DTT
Phase 2 (2009 – 2011)	Switchover to DTT
Phase 3 (2012 and beyond)	Analogue switch-off

4. Under the implementation framework, major tasks in Phase 1 include securing the two licensees' investment commitments in the project, constructing transmission networks, launching DTT by 2007 and expanding digital coverage to at least 75% of Hong Kong in 2008. Major tasks in Phase 2 include full-scale promotion to drive consumer take-up of DTT, considering the disposal of the two multiplexes in reserve, review of analogue switch-off target, achievement of wider coverage of DTT, formulation of plans and preparation for analogue switch-off. Major tasks in Phase 3 include review of DTT coverage, analogue switch-off and planning the use of freed up spectrum after analogue switch-off.

Investment Plans

5. The Broadcasting Authority (BA) and the Telecommunications Authority (TA) have respectively approved the licensees' investment plans for DTT programme service and network rollout, pursuant to their domestic television programme service licences and fixed carrier licences.

6. ATV has committed, in addition to its six-year plan submitted in 2002, an investment totaling more than HK$400 million up to 2009 to provide a hybrid digital service of high definition television (HDTV) and multi-channel broadcasting. The proposed plan is to launch four new standard definition television (SDTV) channels (namely, trendy

culture, trade news and finance, shopping information, and showbiz news) and not fewer than 14 hours of HDTV programmes per week during prime time starting from end 2007. On top of its six-year plan submitted in 2002, TVB has committed an additional investment totaling more than HK$400 million up to 2009 to provide an HDTV channel starting from end 2007. This HDTV channel will include not fewer than 14 hours per day of HDTV programmes.

DTT Transmission and Technical Standard

7. ATV and TVB need to design and build new broadcasting infrastructure at hilltop transmission sites to accommodate additional equipment for digital broadcasting. They are working under a tight schedule to construct the infrastructure and carry out pre-launch testing to meet the requirement of commencing digital broadcasting by 2007. OFTA has been leading a working group with ATV and TVB to solve technical problems and facilitate inter-departmental coordination so as to ensure timely network rollout with respect to land allocation arrangement, planning application and site construction, etc.

8. As for the choice of technical standard, ATV and TVB earlier submitted that they preferred the national standard of the Mainland, which is not yet available. According to the implementation framework, they will adopt the European DVB-T standard if the Mainland authorities do not announce the national standard by end 2006.

CHALLENGES AHEAD

DTT Reception and Receiving Equipment

9. DTT reception occurs at two levels: building level and premises level. At the building level, DTT signals are picked up and distributed to viewers by rooftop antennae and/or in-building communal antenna broadcast distribution (CABD) systems. For the purpose of receiving DTT, residents in low-rise buildings may need to replace their antennae for receiving DTT. Owners of high-rise buildings will need to upgrade the in-building CABD systems. New buildings to be constructed or under construction should also be installed with a CABD system capable of receiving and distributing DTT signals.

10. At the premises level, because the existing TV sets are incapable of decoding digital signals, viewers will need to purchase either a digital set-top box to be connected to their existing TV sets or an integrated digital TV set with a built-in digital decoder. The public can still receive the existing four free television program channels in analogue form without changing or adding any equipment during the simulcast period.

11. Such receiving equipment at both building and premises reception level must be standardized in accordance with the transmission technical parameters and tested for them to receive, distribute, decode and display DTT signals properly and effectively. Standardization is also necessary to achieve equipment interoperability and economies of scale.

12. OFTA has been leading another working group with ATV and TVB to handle all technical issues related to DTT reception and receiving equipment. In particular, the two licensees and OFTA will work out standards for compliance by electronics manufacturers/suppliers/importers/CABD operators. OFTA will issue guidelines to facilitate the replacement of antennae and upgrading/installation of CABD systems by building management and landlords. This working group will also devise a labeling scheme for DTT consumer products and facilitate in-building reception tests.

Public Awareness and Interest

13. The pace and success of digital switchover hinge on readiness of consumers to take up DTT by purchasing the required consumer products. The Government cannot direct the licensees to switch off analogue broadcasting to release spectrum until the majority of population has switched to DTT. According to international experience, affordability of consumer products and the availability of "killer" content are the two key determinants. If the internationally widely-adopted European DVB-T standard is selected by the two licensees, with reference to the digital TV products in the UK and Australia, a range of consumer products will be available at different price levels in Hong Kong. Low-end digital set-top boxes for decoding standard-definition television signals may cost only a few hundred dollars.

14. In terms of digital contents, the new offerings of four more programme channels by ATV and an HDTV programme channel by TVB should be able to drive consumer take-up. Many overseas

governments believe that the 2008 Beijing Olympic Games will be another driver to boost take-up because HDTV sports programmes have the most discernable visual impact.

15. Notwithstanding the favourable factors above, we see the need to raise public awareness and deepen their understanding of DTT as early as possible so as to stimulate their interest in taking up DTT as early as possible. In addition, it is necessary to provide the public with consumer information to help them make purchase decision from now on. We have been receiving enquiries from the public including whether their existing TV sets can still receive TV services with the advent of DTT, whether the existing Plasma/LCD flat-screen TV sets in the market are digital TV or HDTV ready, and whether they should replace their TV sets only after the launch of DTT, etc. We have uploaded a set of Frequently Asked Questions onto the web site of the Communications and Technology Branch (http://www.info.gov.hk/citb/ctb/), which is attached at **Annex B**, for the information of the public. We will mount publicity and promotion campaigns to educate the public, raise their awareness of the imminent availability of DTT, and encourage early take-up at different stages.

B

IMPLICATIONS

16. The implementation of DTT has financial implications relating to licence fees to be received by the Government. The implications will depend on how many new multiplex operators and television service providers enter the market eventually and how ATV and TVB will expand their digital broadcasting services. The economic implications are set out at **Annex C**. The implementation of DTT is in conformity with the Basic Law, including the provisions concerning human rights. Extra resources will be required for publicity and co-ordination with the industry on implementation details at different stages of the analogue-to-digital migration. The Commerce, Industry and Technology Bureau, together with the Office of Telecommunications Authority and Television and Entertainment Licensing Authority, will absorb the extra staffing and financial expenses. The upgrading of the broadcasting network entails civil engineering works at hilltop sites. Some of these sites have been confirmed to fall within country parks, Sites of Special Interest or conservation areas. The works on some of these sites are designated projects under the Environmental Impact Assessment Ordinance (Cap. 499) and will need to follow the statutory requirements of the Ordinance to avoid adverse environmental effects to the maximum practicable extent and to address any potential environmental

C

impacts. The implementation of DTT has no significant sustainability implications.

PUBLIC CONSULTATION

17. Prior to deciding on the implementation framework for DTT, we conducted two rounds of consultation in 2000 and 2003 and briefed the Legislative Council Panel on Information Technology and Broadcasting.

PUBLICITY

18. The web site of the Communications and Technology Branch of the Commerce, Industry and Technology Bureau (http://www.info.gov.hk/citb/ctb/) contains detailed information about DTT. We will hold a press conference jointly with ATV and TVB today to kick off publicity to raise public awareness of the advent of DTT, at which a digital television logo and a pamphlet containing basic information about digital television will be unveiled. We will launch more publicity materials, including television and radio Announcements in the Public Interest, and a dedicated web site on digital television at different stages.

ENQUIRIES

19. Enquiries about this brief can be directed to Mr Eddie Cheung, Principal Assistant Secretary for Commerce, Industry & Technology (Communications and Technology) (telephone: 2189 2236, e-mail: echeung@citb.gov.hk).

Communications and Technology Branch
Commerce, Industry and Technology Bureau

29 March 2006

The Statement of the Secretary for Commerce, Industry and Technology on The Implementation Framework for Digital Terrestrial Television Broadcasting

Background

Our policy is to enhance and promote Hong Kong's information infrastructure and services to make Hong Kong a leading digital city in the globally connected world of the 21st century. The implementation of digital terrestrial television (DTT) helps fulfill this policy. This statement outlines the way forward for implementing DTT broadcasting in Hong Kong.

2. Digital television services are already available to viewers in Hong Kong via cable, satellite and broadband networks. Terrestrial television, the most pervasive kind of television service in Hong Kong, is the only form that has yet to be digitized. About 1.5% of population in Hong Kong experience the problem of poor reception of free-to-air terrestrial television signals. Due to the hilly environment and high building density in Hong Kong, a lot of spectrum is currently used by the two incumbent terrestrial television broadcasters, Asia Television Limited (ATV) and Television Broadcasts Limited (TVB) to achieve territory-wide coverage for analogue broadcasting.

3. DTT broadcasting improves reception and the audio-visual quality of terrestrial television, improves spectrum efficiency, and enables new applications like high-definition television (HDTV), interactive television and datacasting services. When most television households have

switched to DTT services, we may consider switching off analogue broadcasting to release spectrum for communications services.

4. We first consulted the public on the proposed implementation of DTT in December 2000. The proposed implementation framework set out below has taken into account views expressed during the second consultation paper published in 2003.

Considerations

5. The policy objective of implementing DTT broadcasting is to ensure that the terrestrial broadcasting infrastructure will be upgraded timely to realize the benefits described in paragraph 3 above so as to maintain Hong Kong's position as a regional broadcasting hub and a leader in the application of innovative technology. Our priority is to ensure a smooth analogue-to-digital migration of existing terrestrial television services. This entails investment by the two incumbents in building and testing the digital broadcasting network, and launching new television or multimedia services to drive consumer take-up of DTT.

Implementation Framework

(A) Timetable

6. We will require ATV and TVB to start simulcasting their existing television services in analogue and digital formats within 2007 at

the latest. This will tie in with the Olympic Games to be held in Beijing in 2008, which would provide a strong incentive for consumers to take up DTT.

(B) Analogue switch-off

7. Many economies have ambitious targets for switching off analogue broadcasting by around 2010. A target date for analogue switch-off may be conducive to completing DTT switch-over so as to release spectrum for other applications. Subject to further market and technical studies, we aim to switch off analogue broadcasting in five years after the commencement of simulcast.

(C) Technical Standards

8. If the Mainland has not promulgated a national standard before the end of 2006, we will adopt a market-led approach to the selection of technical standard. ATV and TVB have indicated that by then, they will adopt the European DVB-T technical standard for digital broadcasting in order not to further delay the rollout of DTT services.

(D) Frequency Allocation

9. Out of the five multiplexes available in Hong Kong, ATV and TVB shall share the one based on multiple frequency network (MFN) configuration for broadcasting their four existing programme channels in digital format alongside analogue broadcasting. In addition, each of them

will take up one additional multiplex based on single frequency network (SFN) configuration for new high-definition broadcasting services. The remaining two SFN multiplexes will be assigned at a later stage after ATV and TVB have confirmed the technical feasibility of the SFN configuration.

(E) Licensing Arrangements

10. We will separately license the operation of the multiplexes and the television programme services respectively under the Telecommunications Ordinance (Cap. 106) and Broadcasting Ordinance (Cap. 562) in line with the existing licensing regime. Providers of additional services (datacasting) on the multiplexes are required to obtain a Public-Non-exclusive Telecommunications Service (PNETS) licence under the Telecommunications Ordinance. Additional services shall not exceed 25% of the transmission capacity of a multiplex because multiplexes are primarily broadcasting platforms.

(F) Transitional Arrangements

11. ATV and TVB shall extend the coverage of their digital networks to 75% of the area of Hong Kong within 2008 after the start of simulcasting within 2007 at the latest, and share transmission facilities and hill-top sites with new operators, if any, at a later stage to expedite the roll-out of new DTT broadcasting services.

Government-Industry Working Group

12. We will set up a government-industry working group to provide a forum for co-ordinating the migration from analogue to DTT at different stages. Technical matters aside, we will collaborate with the industry to disseminate information about DTT (e.g. consumer product availability and compatibility), work out plans to promote consumer take-up, and ensure a smooth analogue switch-off at a later stage.

13. This statement will be updated as and when necessary during the implementation of DTT broadcasting.

Commerce, Industry and Technology Bureau
9 July 2004

Frequently Asked Questions about Digital Television

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Q27. Whom should I contact if I have questions about digital TV?

Part A – Digital TV Basics

Q1. What is digital TV?

A1. Digital TV is an alternative method of broadcasting the images and sound that appear on TV screen. Rather than being broadcast as a continuous analogue signal, the signals are sent as discrete bits of information. Digital TV improves picture quality and eliminates problems such as ghosting and snowing.

Digital TV is also capable of providing new features and services such as high definition TV (HDTV) programmes, interactive services, mobile reception, widescreen pictures, surround sound audios, multiple viewing angles, multi-channeling, closed-captioning and electronic programme guides. Digital TV may be transmitted via radio-communications (i.e., terrestrial), satellite, cable or broadband network.

Q2. What possible benefits will digital TV provide?

A2. Digital TV is a far more efficient and flexible transmission system than the current analogue system. It allows broadcasters to offer viewers a range of new and different services. The possible benefits include:

- 'Ghost free' reception
- Widescreen 16:9 pictures
- Standard definition television (SDTV) and HDTV programmes
- High quality audio and surround sound
- Multi-channel programming
- Closed captioning of programmes for the hearing impaired
- Electronic Programme Guides (EPGs) with 'now & next' programme information for some channels
- On-screen programme guide channel with today's programme information
- Multi-camera views and enhancements during selected programmes

Interactive television services, including interactive programmes, selected Internet services, home shopping, computer games, etc., can be provided by digital TV.

Q3. What are the differences among high definition television (HDTV), standard definition television (SDTV) and the conventional analogue television?

A3. A picture on the TV screen is formed by a large number of small dots called pixels. The higher the number of pixels, the better the picture quality will be. The conventional analogue TV provides a maximum of 720 (horizontal) x 576 (vertical) pixels. Typically HDTV provides a resolution of some 1024 -1920 horizontal pixels and 720 or more vertical pixels and hence they are capable of generating better picture quality than the conventional analogue TV. HDTV pictures are usually displayed on a wide screen (aspect ratio 16:9, i.e., the ratio of picture width to height) format, instead of the usual square screen (aspect ratio 4:3) format of the conventional analogue TV. Together with the ability to support multi-channel sound system, HDTV enables viewers at home to have same experience as watching a movie in a cinema.

SDTV can be considered as the digitized version of the conventional analogue TV, both of which have the same screen format and picture resolution. However, SDTV pictures are free from 'ghosting' and 'snowing', which are commonly found on analogue TV.

SDTV and HDTV are two of the main features supported by digital TV.

Q4. Is audio quality better on digital TV than on analogue TV?

A4. Yes. Digital television will be transmitted with MPEG digital stereo sound or multi-channel sound, thereby providing markedly superior audio quality.

Part B – Digital TV Services in Hong Kong

Q5. Is digital TV available in Hong Kong

A5. Digital TV is being offered by all pay TV operators in Hong Kong via cable, satellite and broadband network, though digital terrestrial TV will not be launched until 2007.

Q6. When will digital terrestrial TV be available?

A6. The Government requires the existing two terrestrial television

broadcasters Asia Television Limited (ATV) and Television Broadcasts Limited (TVB) to start digital terrestrial television broadcasting by 2007.

Q7. What is the transmission standard of digital terrestrial TV for Hong Kong?

A7. Hong Kong adopts a market-led approach to the selection of transmission standard of digital terrestrial TV. By the end of 2006, the two terrestrial TV broadcasters ATV and TVB will propose to the Government a transmission standard. The Government will make its decision soon afterwards.

Q8. Will digital terrestrial TV continue to be free?

A8. Digital terrestrial TV has the capability of providing both free and pay services. The existing analogue terrestrial TV services, which will be simulcast in digital form, will continue to be provided free of charge. Furthermore, according to their investment plans approved by the Broadcasting Authority, ATV and TVB will also provide new digital TV services (including HDTV programmes) free of charge.

Q9. Are HDTV services available in Hong Kong?

A9. HDTV services can be provided over different digital broadcasting platforms such as satellite, cable, terrestrial and broadband TV network. HDTV services have been launched in economies like United States, Europe, Japan and Australia. In Hong Kong, some pay TV operators will likely provide HDTV broadcasts first. When digital terrestrial TV broadcasting is launched in 2007, free-to-air HDTV broadcasts will also be available. Apart from HDTV broadcasts, consumers may also enjoy recorded HDTV movies/programmes using HD video players /recorders that would likely come to the market in 2006.

Part C – Digital TV Reception and Equipment

Q10. How can I receive digital terrestrial TV?

A10. Normally, people in low-rise buildings use stand-alone rooftop TV antenna while those in high-rise buildings use communal aerial broadcast distribution (CABD) system to receive terrestrial

television. In the former case, the antenna should be able to receive the new digital television services provided that it is in reasonably good condition; in the latter case, the building management will have to add suitable converters to the CABD system in order to receive digital terrestrial television. (See also A13.) In addition, you will need to buy an integrated digital TV set or add a set-top box with digital terrestrial TV reception capabilities to your existing TV set.

Q11. What does a set-top box or an integrated TV set do?

A11. The basic function of a set-top box is to receive and decode digital TV signals for display on a TV set. Other functionalities of a set-top box depend upon its specifications. For example, some set-top boxes support SDTV only, while some support both SDTV and HDTV. Some set-top boxes may even provide viewers with datacasting services and video, audio and data enhancements. In general, the more functionalities a set-top box has, the more expensive it will be.

An integrated TV set is a TV set that has a digital TV decoder built in. Such TV sets are capable of both decoding and displaying digital TV signals. Depending on its specifications, an integrated TV set can either support SDTV only, or both SDTV and HDTV, or even datacasting services.

Q12. What happens to my existing analogue TV set or flat screen TV set? Do I have to switch to digital TV to continue receiving the existing free TV services?

A12. The existing free-to-air broadcasters will simulcast (i.e., broadcast in both analogue and digital format) their existing four programme channels before the switch-off of analogue broadcasting. Viewers will therefore continue to be able to use their current analogue TV sets or flat screen TV sets to receive the existing free TV services at the simulcast stage. However, viewers using such TV sets will not be able to enjoy the enhanced features or new services of digital TV unless they add to their existing TV sets a set-top box with digital terrestrial TV reception capabilities or use integrated digital TV sets. After analogue switch-off, all viewers will need to have a set-top box with digital terrestrial TV reception capabilities connected to their existing TV sets or an integrated digital TV sets in order to receive terrestrial TV.

Q13. Will I need to upgrade my antenna system?

A13. The channels being allocated to digital terrestrial TV are mainly adjacent to existing analogue channels. If your existing antenna is in reasonable condition and is presently providing good reception, it should be able to receive the new digital television services. For a communal antenna broadcast distribution (CABD) system installed on a multi-storey building, although it can share the same antenna, there will be a need to install additional amplifiers/converters for the digital terrestrial TV channels. The Government is working with the terrestrial TV broadcasters and industry sector to develop relevant guidelines.

Q14. Will my Video Cassette Recorder (VCR) or DVD Recorder still work?

A14. Yes. During the simulcast period, the existing video recorders such as VCRs and DVD Recorders will be able to record any analogue programme while a different digital programme is being viewed. Current video recorders will only be able to record TV programmes with conventional TV or SDTV picture quality.

During and after the simulcast period, viewers will be able to record the digital programme channel being viewed, provided that their set-top boxes or digital television sets have an analogue output. However, since VCRs employ analogue technology, the picture quality of recorded digital programmes for SDTV will only be similar to that of analogue programmes. Current video recorders may not be able to record HDTV programmes.

In some cases, as the frequency channel used by the video output of VCRs may be the same as that used by digital TV signals, the video output of such VCRs may need retuning or require the use of audio/video (A/V) connection.

Q15. I am told that there are new TV sets available in the market that are ready to receive the future "digital broadcasting" in Hong Kong. Is it true?

A15. The answer is **NO** if "digital broadcasting" refers to free-to-air digital terrestrial TV service. According to the implementation plan announced by the Government, the standard of digital terrestrial TV

for Hong Kong will be decided in 2006 or early 2007. When digital terrestrial TV service first commences in Hong Kong by 2007, you will need an external decoder or set-top box for receiving and decoding digital TV signals for display on the TV set; or you may buy an integrated digital TV set that have a built-in decoder, which may be available sometime in the future.

Q16. I am a pay TV subscriber and the service provider has already provided me with a set-top box. Can I use the same set-top box to receive the future digital terrestrial TV services?

A16. No, because terrestrial and pay TV services use different broadcasting platforms and technologies. For instance, pay TV services available in Hong Kong are provided over cable, satellite or broadband platform, while digital terrestrial TV will be transmitted via terrestrial radio wave. The respective pay TV operators also employ special control mechanism to avoid unauthorised reception of their services. At present, the pay TV operators provide set-top boxes that can only be used to access their respective pay TV services.

Q17. What do I need in order to watch HDTV?

A17. HDTV is one of the main features supported by digital TV. To watch HDTV, you have two options. The first is that you may choose to buy a set-top box capable of decoding HDTV signals and a TV set capable of displaying HDTV pictures. Alternatively, you may choose to buy an integrated TV set capable of both decoding and displaying HDTV signals.

HDTV set-top boxes for pay TV services are provided by the pay TV operators concerned. HDTV set-top boxes or integrated TV sets for the reception of terrestrial HDTV broadcasts should be available in the market in 2007.

If you want to watch recorded HDTV movies/programmes, you need to have a compatible HD player/recorder.

Q18. What are the basic requirements of a TV set in order to view HDTV?

A18. HDTV is one of the main features of digital TV. TV sets for viewing HDTV (so called “HDTV Ready”) should have at least the

following basic features:

- having wide screen aspect ratio of 16:9;
- supporting common HDTV picture formats like 720p (720 lines using progressive scanning) and 1080i (1080 lines using interlaced scanning) etc.; and
- having built-in HDTV input terminals like DVI, HDMI and YPbPr, etc.

Note 1: Progressive and interlaced scanning are the two TV display methods. TV pictures using 720p or 1080i should yield compatible good picture quality under normal applications. Although TV sets supporting 1080p (1080 lines using progressive scanning) should provide higher picture quality, it is less common and more expensive. (See also A19.)

Note 2: Although some TV sets now available in the market have been marked "HDTV Ready", you should check with the retailer whether they support the above minimum requirements of HDTV. The Government will consider implementing a labelling scheme for HDTV equipment in future in consultation with the industry to facilitate easy identification by consumers.

Q19. What is the HDTV standard for Hong Kong?

A19. HDTV is one of the main features supported by digital TV. Its standard includes the signal format of TV studio production/transmission such as resolution (e.g., 1920 x 1080i, 1280 x 720p) and aspect ratio (e.g., 16:9). Hong Kong adopts a market-led approach to the selection to HDTV standard. By the end of 2006, when ATV and TVB propose to the Government a transmission standard, they will also propose an HDTV standard. The Government will announce its decision soon afterwards. In any case, the HDTV standard will support the features mentioned in A18 above by using 720p and/or 1080i scanning method. It is likely that set-top boxes or integrated TV sets supporting multi-standard HDTV signals will be available in the market.

Q20. Can I use my existing TV set such as flat screen TV set to watch HDTV?

A20. It depends on what you have now. If you already have had an "HDTV Ready" TV set which allows the display of high resolution pictures, then you will need to add a set-top box capable of decoding

HDTV signals. (See also A22.)

If you have a "HDTV Compatible" TV set that is only able to down-convert HDTV signals for display in SDTV format, you can buy an HDTV set-top-box and watch HDTV programmes in SDTV format, but cannot enjoy the high resolution pictures of HDTV.

If your existing TV set is neither "HDTV Ready" nor "HDTV Compatible", you must have a suitable set-top box that can down-convert HDTV signals for display in SDTV or analogue format.

Q21. Are those flat panel TV sets now available in the market able to support HDTV?

A21. Most of the latest models of flat panel TV sets for sale in retail shops should be able to support HDTV. But you should check with the retailers or suppliers whether the basic features mentioned in A18 for a "HDTV Ready" TV set are fully supported. It should be noted that some old models of flat panel TV sets support SDTV only, while some others are in fact "HDTV Compatible" which accepts HDTV video signals, but shows pictures in SDTV format only. If in doubt, you should consult the relevant retailer/supplier and ask for a demonstration.

Q22. Why is the resolution of HDTV sets available in the market different from the often-claimed HDTV resolution 1920 x 1080i or 1280 x 720p?

A22. HDTV usually quotes a resolution of 1920 x 1080i or 1280 x 720p, which is the signal format of TV studio production/transmission. However, it is not necessarily the same as the display resolution of a HDTV set since the display picture quality of an HDTV set also depends on other factors such as the internal signal processing arrangements. You may find HDTV sets in the local market with display resolution of 1024 x 1024, 1280 x 768, 1366 x 768, 1920 x 1080 or even 960 (half of 1920) x 540 (half of 1080). They are optimised to produce good HDTV pictures. Please refer to A18 for the selection of an HDTV Ready TV set.

Q23. There are LCD computer displays with widescreen and a DVI input terminal, which seem to fulfil the basic requirements for HDTV (see A18), but there is no information about whether they can support 720p or 1080i HDTV format. Can they be used to receive the future free-to-air HDTV services in Hong Kong?

A23. There are low-cost LCD computer displays of some 20 inches (length in diagonal) having an aspect ratio of 16:10 in the local market. Unless otherwise specified, LCD computer displays support only progressive scanning and certain resolution formats. Although they may provide a resolution even higher than that required for HDTV playback, they are designed to work with a personal computer (PC) and may not be able to accept the output signals direct from an HDTV set-top box. If you want to enjoy free-to-air HDTV services through a widescreen LCD computer display, you will need to add a compatible digital TV tuner card in your PC or buy a set-top box for such an LCD computer display. Depending on the market situation, such digital TV tuner cards for PCs or digital TV set-top boxes for LCD computer displays may be available sometime in future after the launch of free-to-air HDTV services in 2007. When buying an HDTV Ready TV set, you should ask the relevant retailer or supplier about its specification to ensure that it supports the common HDTV formats of 720p and 1080i.

Q24. What are other things I need to be aware of when buying a new TV set for viewing HDTV?

A24. You should assess your own needs and also take into account your home environment and budget constraints. For example, there are different kinds of display technology like Cathode Ray Tube (CRT), Plasma Display Panel (PDP), Liquid Crystal Display (LCD) and more to be introduced in the market soon. These display technologies have their own pros and cons. The prices of TV sets vary a lot depending on the display technologies, brands, screen size, performance and other advanced functionalities.

Q25. Are digital TV receivers expensive?

A25. The prices of set-top boxes and integrated digital TV sets are determined by the market. Currently, the retail price of low-end digital terrestrial TV set-top boxes is about £35 in the UK or HK$480 at an exchange rate of £1:HK$13.7.

Part D – More Information and Enquiries

Q26. How can I obtain more information about digital TV?

A26. You may visit the web site of the Office of the Telecommunications Authority (OFTA) (www.ofta.gov.hk) or the Communications and Technology Branch of Commerce, Industry and Technology Bureau (www.citb.gov.hk/ctb) for more information about digital TV in Hong Kong.

Q27. Whom should I contact if I have questions about digital TV?

A27. You may contact OFTA for other questions about the technical aspects of digital TV in Hong Kong by any of the following methods:

(a) E-mail: dtv@ofta.gov.hk
(b) Tel: 29616713
(c) Fax: 29047147

Annex C

Economic Implications

The implementation of DTT will enhance the capacity of our broadcasting infrastructure for the provision of a variety of communications services to meet Hong Kong's future needs as a digital city, and maintain our position as a regional broadcasting hub. The approach to assigning multiplexes fulfils a dual objective of guaranteeing incumbent broadcasters sufficient transmission capacity for digital migration and new services, and of leaving an opening for new market entrants to enable more competition in the broadcasting industry.

2. The implementation of DTT has multifaceted economic implications. A cogent assessment will require a complicated model to analyse the quantifiable costs and benefits to different stakeholders. The major variables for the analysis will include the economic value of:

- the released spectrum after analogue switch-off;
- capital costs and savings arising from the analogue-to-digital migration;
- marketing cost for DTT services;
- spending on new consumer electronic products such as set-top boxes and better resolution television sets which is a cost to consumers but a benefit to consumer electronics manufacturers and retailers;
- improved reception quality and coverage; and
- investment in new or enhanced programme contents and innovative services on the digital transmission platforms.

3. In the UK where DTT broadcasting started in November 1998, the Department of Trade and Industry, the Department for Culture, Media and Sport, and the Radiocommunications Agency (now integrated with four other regulators into the Office of Communications) jointly conducted in 2003 a cost-benefit analysis to evaluate the economic benefits of a complete digital switchover from a simulcast situation. Having considered the major variables listed in paragraph 2

above, it was estimated that the economic benefits of achieving complete digital switchover were around £1.5-£2 billion in net present value terms, and any delay in switchover would reduce the economic benefits.

4. Given the similar television market structures of the UK and Hong Kong in terms of the mainstay status of free-to-air terrestrial television, by reference to the UK's cost-benefit analysis, the implementation of DTT in Hong Kong should also bring positive economic benefits to the territory.