

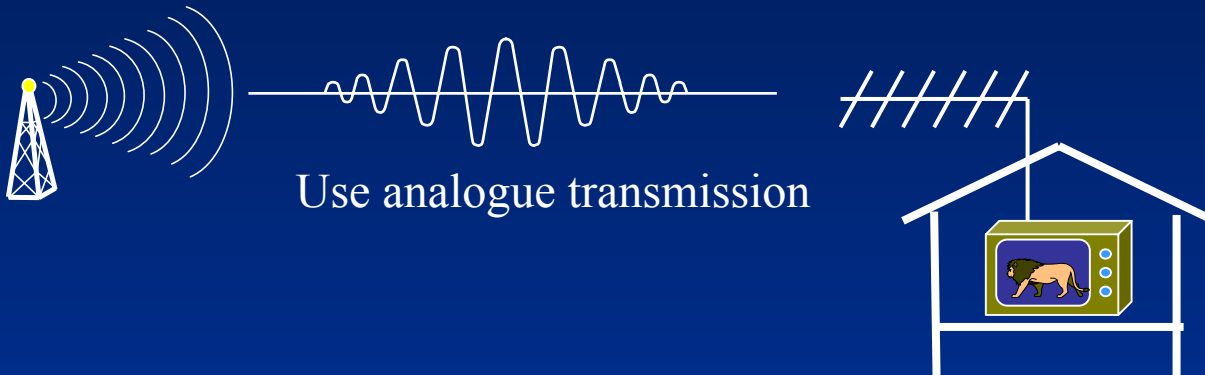
**An Introduction to  
Digital Terrestrial Television  
(DTT) Broadcasting**

**September 2004**



# What is **DTT** ?

## Analogue Terrestrial Television (Existing)



- Analogue TV signals received via aerial or communal aerial broadcast distribution (CABD) system for viewing on TV set
- Currently four free-to-air TV programme channels in HK

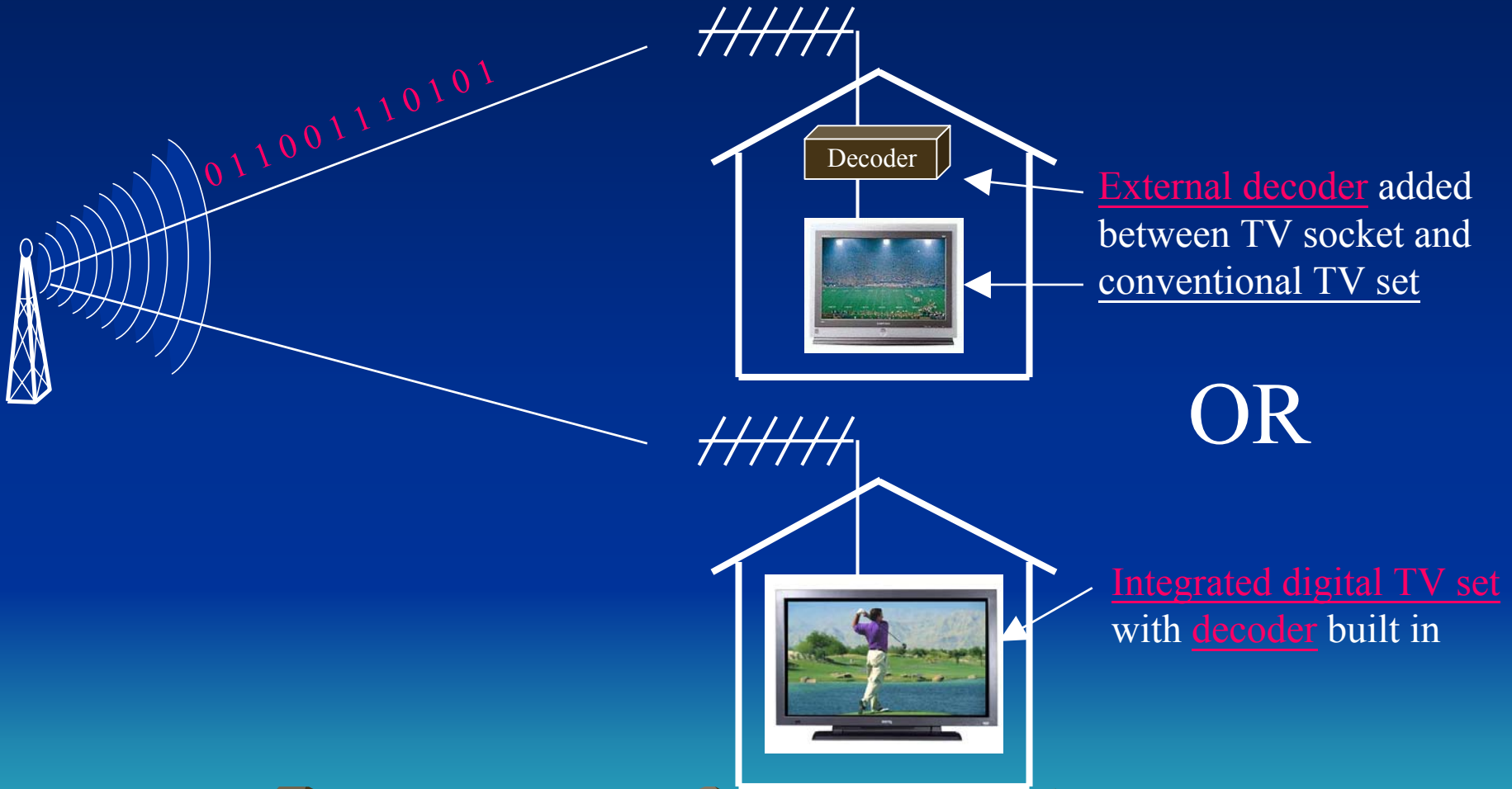
## Digital Terrestrial Television (Coming)



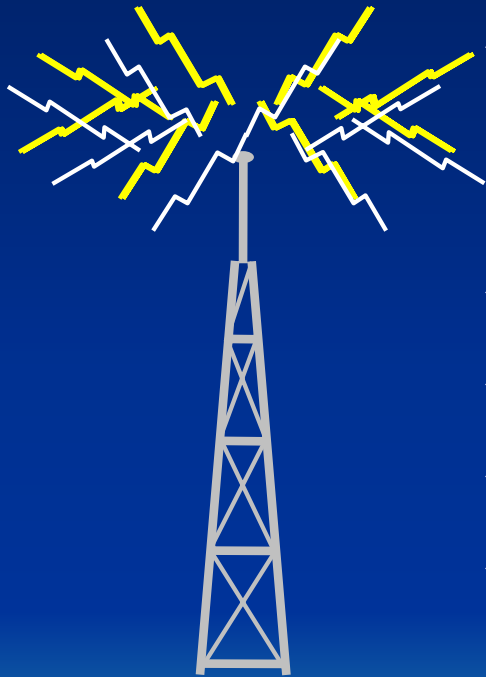
- Digital TV signal received via aerial or CABD system and **decoded** for viewing on TV set
- Supports more free-to-air TV programme channels plus **high definition TV**

# How to receive **Digital Terrestrial Television** ?

## How to Receive DTT ?



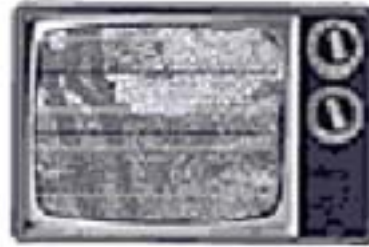
# Benefits of **DTT**



- ◆ Improved reception and picture quality
- ◆ Support new services like high definition television (HDTV) and multimedia / interactive services
- ◆ Carry more contents in one channel
- ◆ Support mobile / portable reception
- ◆ Better use of frequency spectrum
- ◆ Release valuable frequency spectrum for other uses after full migration from analogue to digital broadcasting

# DTT Improves Reception of Television Signals

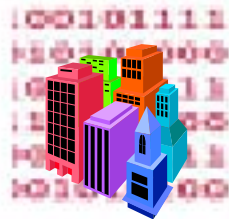
Analog  
Signal



Analogue – weak signal  
causes snowy pictures

Radio signals weaken over distance and due to blockings

Digital  
Signal



Digital – clear picture  
can be received at a  
lower signal level

# DTT Improves Television Picture Quality



# DTT Supports High Definition Television

## Analogue TV (Standard Definition)



Resolution up to 575 lines  
(vertical) x 720 pixels  
(horizontal)

Aspect ratio 4:3

Stereo sound

## Digital TV (High Definition)



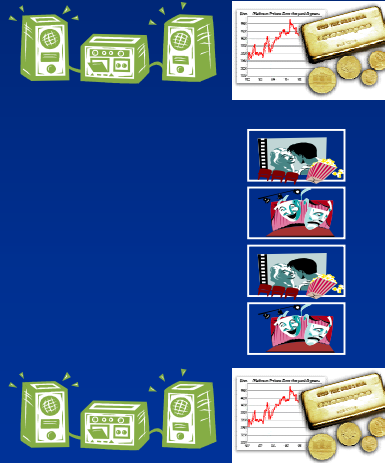
Resolution up to **1080 lines**  
(vertical) x 1920 pixels  
(horizontal)

Aspect ratio **16:9** (Widescreen)

**Multi sound channels** (e.g.  
Dolby 5.1 multi-channel sound)

# DTT Supports Multi-Channel Programmes and Multimedia Contents

Digital  
broadcasting



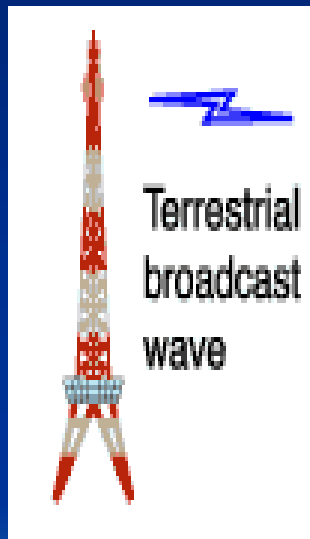
Digital  
frequency  
Channel

A frequency channel with digital transmission can carry **one high definition TV** programme channel plus multi-sound channels and data services

OR

Digital  
frequency  
Channel

**four standard definition TV** programme channels plus multi-sound channels and data services



Analogue  
broadcasting

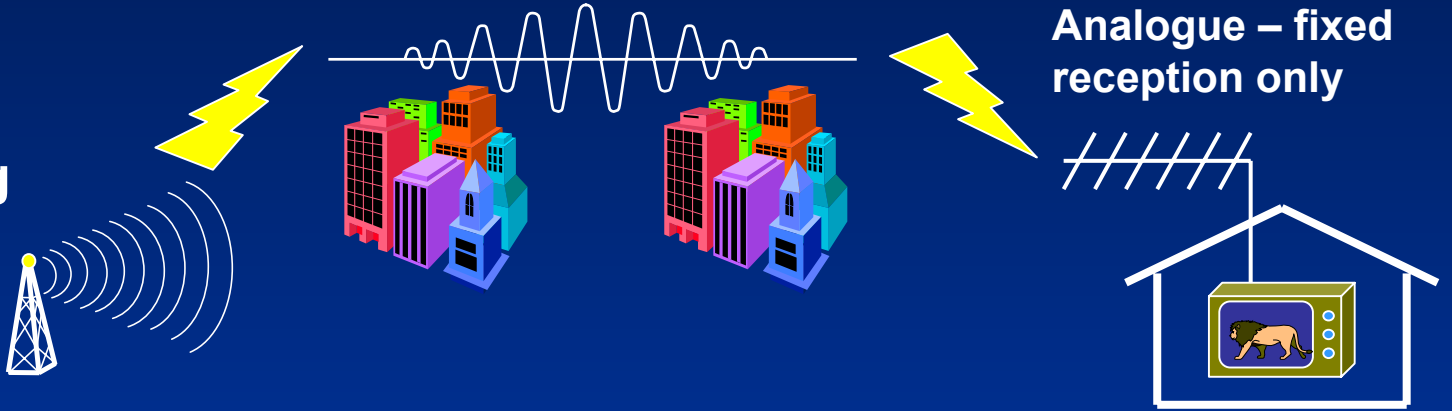


Analogue  
frequency  
Channel

A frequency channel with analogue transmission can carry one standard definition equivalent TV programme channel only

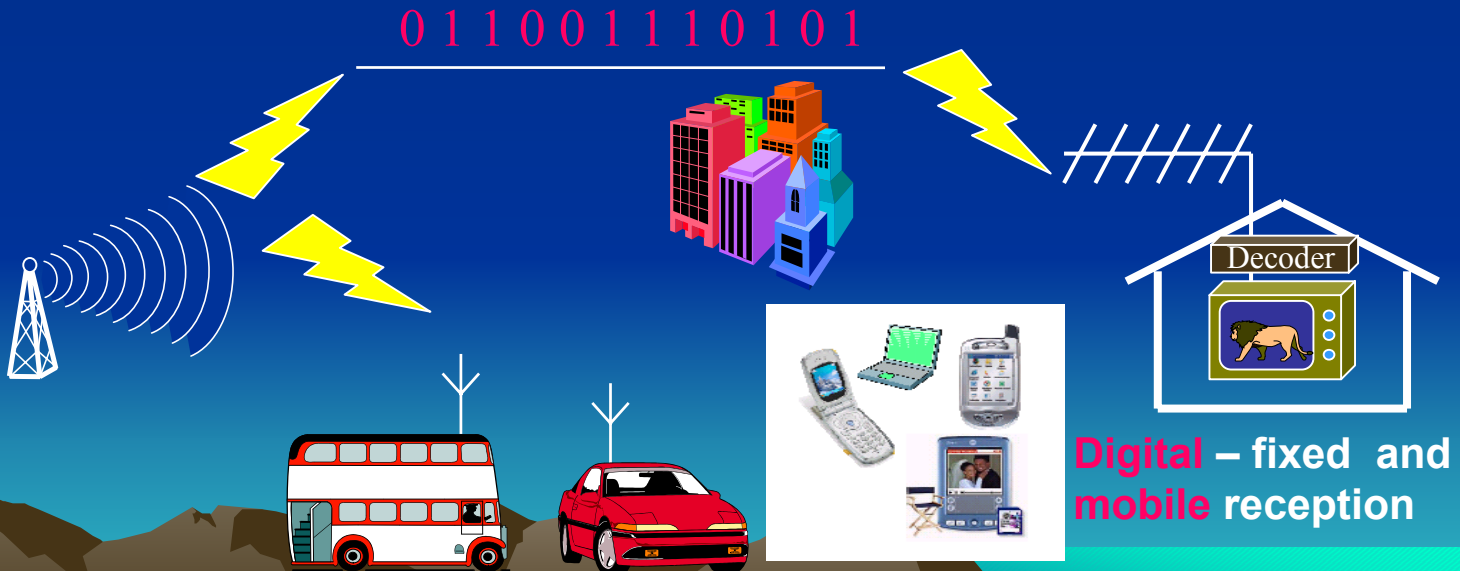
# DTT Supports Reception by Mobile / Portable Devices

**Analogue  
broadcasting**



**Analogue – fixed  
reception only**

**Digital  
broadcasting**

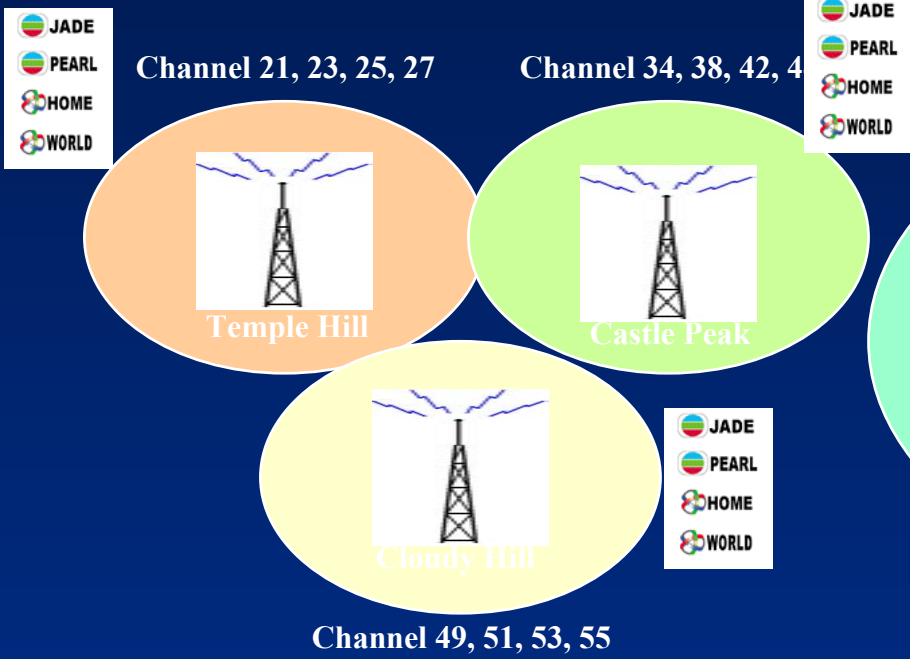


**Digital – fixed and  
mobile reception**

# DTT Makes More Efficient Use of Radio Spectrum

## Multi-Frequency Network

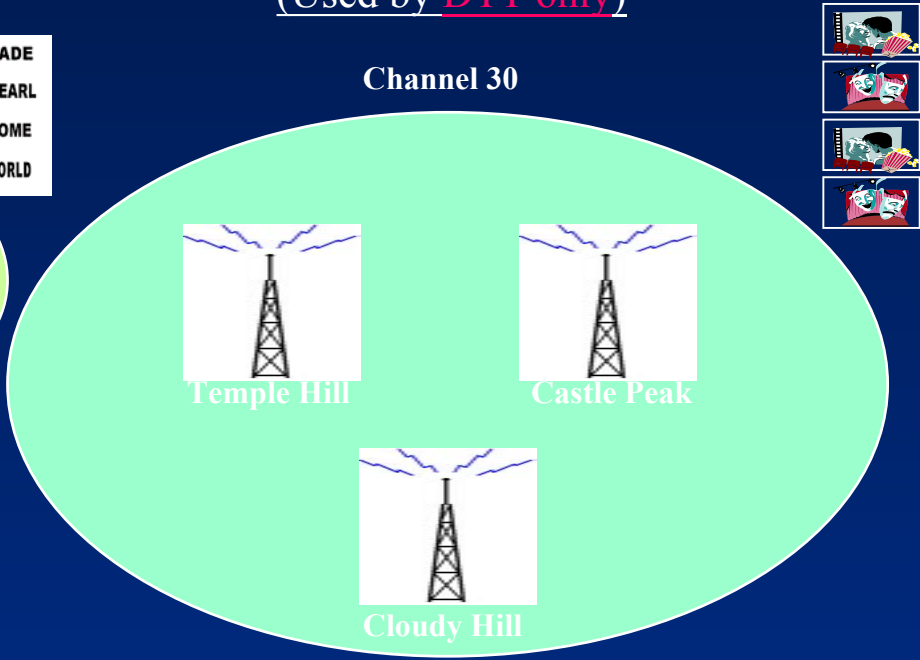
(Used by Existing Analogue TV)



- Different transmitters use different frequency channels to carry the same TV programme channels
- Many frequency channels are required to cover the service area

## Single-Frequency Network

(Used by **DTT only**)



- Different transmitters use the same frequency channel to transmit the same TV programme channels
- Only **one** frequency channel is required to cover the service area



# Release of Valuable Frequency Spectrum after Analogue Switch-off and Full Migration to Digital

## Existing Status

The existing spectrum can be used for transmitting only 4 analogue channels and some digital channels



digital

```
.00101111  
>10101000  
>00101111  
>10101000  
>00101111  
>10101000
```



analogue



Some spectrum can only be used for digital broadcast (maximum 5 multiplexes)

ATV Home  
ATV World  
TVB Jade  
TVB Pearl

## After Analogue Switch-off

The whole spectrum can be used for digital broadcasts and other applications



digital

```
.00101111  
>10101000  
>00101111  
>10101000  
>00101111  
>10101000
```



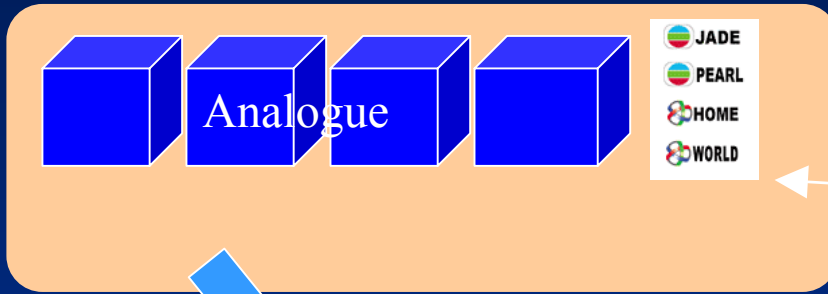
digital broadcasting services



spectrum released for digital broadcasts and other applications

# Timetable for Implementation of DTT

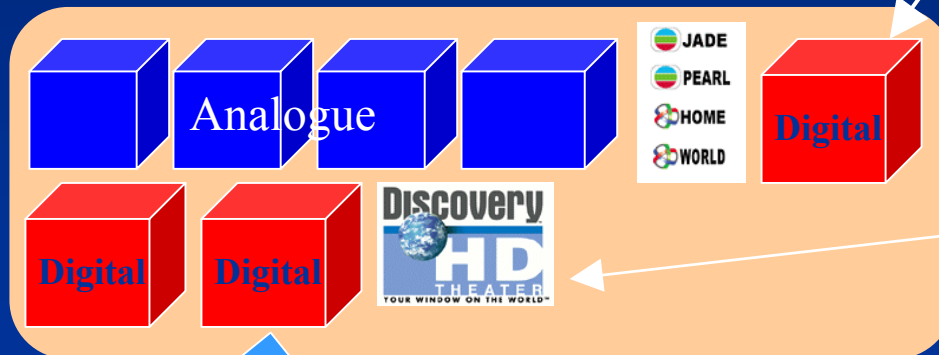
Analogue  
Broadcasts  
Only



Existing four  
free TV  
programmes

Now

Simultaneous  
Analogue and  
Digital Broadcasts  
(Simulcast)

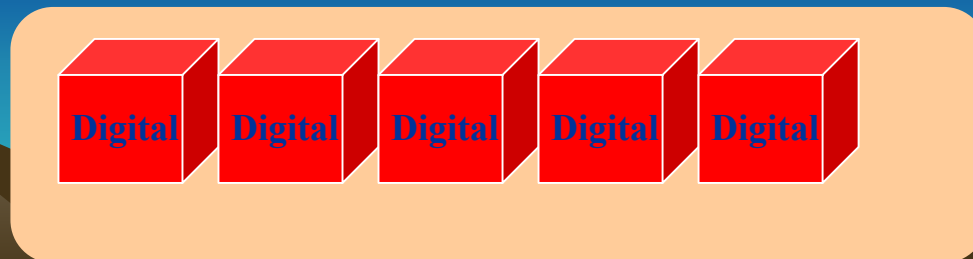


*Simulcast starts (By 2007)*

New HDTV  
and/or multi-  
channel  
programmes

Simulcast  
Period

Digital  
Broadcasts  
Only



*Analogue broadcasts  
to be switched off*

Analogue  
Switch-  
off

# More about **DTT** in Hong Kong

Please visit the following websites for more information about DTT in Hong Kong:

1. Communications and Technology Branch, Commerce, Industry and Technology Bureau (<http://www.citb.gov.hk/ctb>)
2. Office of the Telecommunications Authority (<http://www.ofta.gov.hk>)

