

Digital Television Set-top Boxes

With the official launch of the Digital Terrestrial Television (DTT) broadcasting on 31 December 2007 in Hong Kong, the public can enjoy new audio-visual effects at home by watching the new free channels provided by the two local television broadcasters, Asia Television Limited (ATV) and Television Broadcasts Limited (TVB) on standard definition television (SDTV) and high definition television (HDTV).

The DTT improves picture quality and eliminates problems such as ghosting and snowing. The DTT not only supports HDTV of which the pictures are displayed on a wide screen (aspect ratio 16:9) format, but also supports multi-channel sound systems. With the broadcasting of HDTV, people at home can have the same experience as watching a movie in a cinema. For effective transmission of HDTV signal, video signals are compressed in accordance with the H.264 standard which is also known as MPEG-4 Part 10, or MPEG-4 AVC (for Advanced Video Coding). H.264 standard contains a number of new features that allow it to compress video much more effectively than older standards.

To watch the DTT broadcasting, a DTT receiver (i.e. a set-top box) is required. A set-top box is a device that enables a television set to receive and decode DTT broadcasts. A set-top box is necessary to television viewers who wish to use their current analog television sets to receive digital broadcasts.

A typical set-top box consists of one or more microprocessors for running the operating system and for parsing the MPEG transport stream. It also comprises RAM, MPEG decoder chip, and audio decoding and processing chips. At present, most of the set-top boxes available in the market support 720p (1280 x 720 progressive) and 1080i (1920 x 1080 interlaced) HDTV picture formats, providing a much higher picture quality as compared with conventional analogue TV broadcasting signals.

The Electrical Blog is contributed by the Electrical Division. If you would like to know more about this topic, please contact the Division Hon Secretary, Ir Simon Chung at simon.chung@arup.com