

RADIO SPECTRUM AND TECHNICAL STANDARDS ADVISORY COMMITTEE

**Proposed revision to HKCA 1108 Technical Specification for
Digital Terrestrial Television Baseline Receiver Requirements**

Introduction

This paper proposes the adoption of the following revised HKCA standard:

HKCA 1108 Issue 02 “Technical Specification for Digital Terrestrial Television Baseline Receiver Requirements”

Background

2. In June 2007, the former Telecommunications Authority (“TA”) decided to adopt the China National Standard of DTT Services (“National Standard”)¹ as the technical standard of DTT services in Hong Kong and issue HKCA 1108 Issue 01² in the same year setting out the baseline requirements of DTT receivers for use in Hong Kong. To ensure compliance by the two DTT broadcasters, i.e. Asia Television Limited (“ATV”) and Television Broadcasts Limited (“TVB”), the former Broadcasting Authority included the provisions for governing technical performance of DTT broadcasting in the Generic Code of Practice on Television Technical Standards (“TV Technical Code”) in November 2007. On 31 December 2007, ATV and TVB launched their DTT services based on the National Standard.

3. Under the current arrangement, ATV and TVB are sharing a multiple

¹ The National Standard refers to the standard entitled “GB20600-2006: framing structure, channel coding and modulation for digital television terrestrial broadcasting system” announced by the Standardization Administration of the People’s Republic of China.

² Formerly known as HKTA 1108 Issue 01.

frequency network (“MFN”)³ to simulcast the four analogue programme channels (i.e. Home, World, Jade and Pearl) in digital format. In addition, they are each operating a single frequency network (“SFN”)⁴ to provide digital programme services which include, among others, high definition television (“HDTV”) services.

Video Coding

4. In DTT broadcasting, video and audio signals are digitised and encoded before transmission over the airwaves, and after transmission, they are decoded and converted back to video and audio signals for playback by television sets. Coding standards, such as MPEG-2⁵ and H.264⁶, are commonly used to compress video signals in digital format. When the DTT services were launched in 2007, MPEG-2 was the most typical video coding standard and the encoders / decoders of MPEG-2 were of relatively low cost. ATV and TVB therefore broadcast the four simulcast standard definition television (“SDTV”) channels in the MFN based on MPEG-2. H.264, on the other hand, is a more advanced standard which can support more programme channels or HDTV programmes with the same data rate. The two DTT broadcasters planned to deploy H.264, instead of just MPEG-2, for HDTV and other additional SDTV programme channels in the SFNs.

5. In order to facilitate adequate supply of DTT receivers to meet the different consumer needs, the former TA specifies two types of DTT receivers (i.e. basic-tier and higher-tier DTT receivers) in HKCA 1108. A basic-tier receiver is only capable of receiving MPEG-2 programmes of the MFN whereas a higher-tier receiver can receive MPEG-2 and H.264 programmes in both the MFN and SFNs.

³ Under the MFN configuration, different frequency multiplexes are used in different transmitting stations in Hong Kong.

⁴ In contrast to MFN, a single frequency multiplex is used throughout Hong Kong under the SFN configuration.

⁵ MPEG-2, the second set of standards for video compression and coding developed by an industry body Motion Pictures Expert Group, is an international standard for the generic coding of moving pictures and associated audio information.

⁶ H.264, also known as MPEG-4 Part 10, is the newer generation video compression and coding technology written by MPEG together with the International Telecommunication Union Telecommunication Standardisation Sector (“ITU-T”) Video Coding Experts Group. It can match the best possible MPEG-2 quality by about half of the data transmission rate.

Proposal from the DTT Broadcasters

6. With the accumulation in operational experience since the launch of DTT services, the two DTT broadcasters recently submitted a joint proposal to the Communications Authority (“CA”) applying for a change of video coding from MPEG-2 to H.264 in the MFN. They were of the view that the adoption of H.264 in the MFN could result in a better picture quality of the simulcast programmes and give opportunities for the introduction of new services in future.

7. Upon their applications, trial permits were granted by the Office of the Communications Authority (“OFCA”) for ATV and TVB to temporarily deploy H.264 in the World and Pearl channels of the MFN from end July 2012 to end October 2012. The trial is successful and improvement is noted in picture quality, in particular, during the broadcast of the London Olympic Games on these two channels between end July and mid August 2012. In practice, the change of video coding from MPEG-2 to H.264 is seamless to most viewers. Only a small portion of DTT receivers may require minor user intervention, such as re-scanning DTT channels on the receiver, for resuming normal reception after the change.

8. In September 2012, having considered the joint proposal submitted by the two DTT broadcasters, the CA endorsed a revision to the TV Technical Code for which H.264 will be allowed in the MFN. ATV and TVB have indicated that they will change the video coding of all simulcast programme channels in the MFN to H.264 by end October 2012 after gazettal of the revised TV Technical Code.

Normal Use of the Existing DTT Receivers

9. As driven by consumer demands, DTT receivers available in the market are all higher-tier DTT receivers and there is no basic-tier DTT receiver registered under the voluntary labelling scheme of DTT receivers currently administered by OFCA. In other words, notwithstanding the video coding for the MFN is changed to H.264, DTT receivers currently in use by the viewing public or available for sale in the market (i.e. higher-tier DTT receivers)

continue to receive the simulcast programmes normally.

Proposed Revisions to the HKCA 1108

Deletion of Basic-tier DTT Receiver

10. Following the change in video coding from MPEG-2 to H.264 in the MFN by the DTT broadcasters in end October 2012, reference to basic-tier DTT receivers, if retained, may cause confusion to the industry and public as the DTT broadcasters no longer provide MPEG-2 programmes in the MFN. It is therefore proposed that reference to basic-tier DTT receivers be deleted, i.e. all DTT receivers as referred to in the revised HKCA 1108 will be higher-tier DTT receivers. Text in the HKCA 1108 has been aligned accordingly. Such revision should have no effect to the industry and viewing public as all DTT receivers available in the market are higher-tier DTT receivers as explained above.

Update of Technical Standards

11. In December 2011, the International Telecommunication Union adopted the National Standard in recommendation ITU-R BT.1306 “Error-correction, data framing, modulation and emission methods for digital terrestrial television broadcasting”. In addition, there are also updates of technical standards as reference in the HKCA 1108 Issue 01 since its adoption in 2007. The said changes have been reflected in the HKCA 1108 Issue 02.

WTO Notification

12. As the proposed HKCA 1108 Issue 02 is based on open standards, notification to the World Trade Organisation (WTO) is not necessary.

Recommendation

13. It is recommended that HKCA 1108 Issue 02 as given in the Annex be

submitted to the CA for adoption.

Advice Sought

14. Members are invited to give their comments on the proposed revision to HKCA 1108 and consider the recommendation given in paragraph 13 above.

Office of the Communications Authority
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