RADIO TELEVISION HONG KONG
香港電台

Digital Sound Broadcasting
RTHK Submission for
Information Technology and Broadcasting Panel

Background

1. The present AM and FM frequency spectrum in Hong Kong is crowded and congested, AM coverage in particular suffering from poor territory-wide reception. The introduction of Digital Sound Broadcasting (DSB) offers a robust form of transmission using digital encoding/compression technology to combine and deliver several sources (channels) of high quality audio, text, pictures, and data with greater reliability.

2. The DSB system serves an area by using one single frequency (single frequency network) while the traditional analog AM/FM systems cover the same by using different radio frequencies (multiple frequency network). This, together with the fact that one frequency could carry multiple sources as mentioned above, significantly expands the number of channels available and makes more efficient use of the available spectrum which makes available more programme services. The benefits of digital broadcasting include the possibility of an increase in the number of channels, new multimedia services and high sound quality. Broadcasters are given access to create more new contents to serve the community.

3. One of the popular DSB systems is Digital Audio Broadcasting (DAB). Originally, the cost of DAB receivers was very expensive. In the past 5 years, the price of digital receivers dropped significantly. At present, current price of most DAB receivers are below HK$1,000. The affordable price of receivers is critical in pushing the development of DAB in Hong Kong.

4. RTHK believes that digital radio possesses the potential and power to further enhance radio broadcasting services in Hong Kong. In recent years, RTHK has tested digital radio transmission via DAB and Digital Radio Mondiale (DRM).

DAB L-Band Trial

5. In 1998, RTHK, together with the Information Technology and Broadcasting Bureau (ITB), the Office of the Telecommunications Authority (OFTA), Hong Kong Commercial Radio and Metro Broadcast Corporation, ran tests on digital signals on Eureka 147 (DAB) L-Band. Improvement in sound quality was evident.

6. After the test, RTHK proposed to use Band III, as opposed to L-Band which was used in the first round of tests. UK broadcasts DAB in Band III and research has confirmed that "kitchen" radios are the most popular types of digital radios. Generally speaking, Band III works better than L-Band for indoor reception.

DRM Trial

7. With constant complaints on the inferior AM signal lodged by the public, including Legco members, RTHK continues to explore opportunities to enhance the quality of AM service.

8. In March 2004, RTHK commenced tests on digital broadcasting on DRM, the digital system for replacing AM transmission. The DRM test was conducted on the same frequency in which Radio 5 was transmitted. The test aimed at improving both transmission coverage and audio quality.

9. The test ran for a month and successfully demonstrated the versatility of the digital platform. The signal was received throughout the whole territory with satisfactory quality performance. Dual language programmes (English and Cantonese) over the same channel were transmitted. Data transmission tests were also conducted by sending JPEG images (RTHK logo) at the same time with regular audio service.

10. The overall results of the test were satisfactory. Sound quality was significantly improved when compared to the analogue AM signal. The DRM system proved reliable and there were no reported failures during the test period.

DAB Band III Trial

11. Approved by OFTA, RTHK re-launched the DAB trials in September 2004 to test the adaptability of different DAB technologies in Hong Kong. The test signal was transmitted via Europe's Eureka 147 Band III system on frequency 218.64MHz. Two transmitters had been set up at Mount Gough on Hong Kong Island, and Beacon Hill in Kowloon respectively, covering Hong Kong, Kowloon Peninsula and Shatin.

12. Programmes on FM and AM channels were relayed with high-quality sound effects. Trial points were then set up at different locations, in Lok Fu, Wong Tai Sin, Shatin, Cheung Sha Wan, Homantin, Kowloon Tong and Stanley for the public to experience the high sound quality of this new technology.

13. Questionnaires were given out in the public trial points to collect the public's comments on the test. During the trial period from March to May 2005, 340 questionnaires were returned. The average score for DAB reception was 8 (10 the highest score). Over 70% of the respondents expressed they were willing to buy a DAB receiver for quality sound broadcast. In responding to the price of DAB receivers, 26% of the respondents found the pricing from HK$101 to HK$400 acceptable. When comparison was made between DAB and AM / FM transmission, 78% and 69% respondents opted for DAB respectively.

14. Another phase of DAB Band III test was embarked in August 2005 to extend the test to the north-western part of the New Territories. This project was still under preparation.

15. Existing DAB multiplex carries the 7 RTHK radio channels in stereo sound quality. During the WTO MC6 period (13th to 18th December), RTHK offered the eighth channel – WTO channel to relay all the meetings. The trial demonstrated that sound quality of DAB was superb and mobile reception was reliable.

Moving Ahead

16. The latest development in Digital Multimedia Broadcasting (DMB), another

DAB-based application in Korea has attracted lots of attention. Designed to broadcast television and video to mobile handsets, DMB together with existing DAB radio and multimedia services, and can be easily integrated wherever a DAB infrastructure is available. Other than Korea, broadcasters in Guangdong also developed DMB transmission and equipment. RTHK will be gathering more information from overseas counterparts as well as finalizing a working plan for future trials of digital audio broadcasting in Hong Kong.

17. In conclusion, RTHK recommends the following proposals for the development of Digital Sound Broadcasting in Hong Kong.

a) DAB, DRM and DMB tests for implementation have been conducted in various Asian-Pacific countries, including Mainland China with encouraging progress. Hong Kong as a leading technology center in the region should get itself prepared for digitization, and assume an active role in being a major player when the technology becomes mature.

b) With adequate funding, RTHK will be able to provide new programme services in digital format, such as learning channel, community channel & children's channel. RTHK is prepared to introduce DMB trial in Hong Kong to further explore the horizons of digital audio broadcasting.

c) Though DRM is transmitted through the existing analogue AM frequencies, the new digital technology could enhance the reception quality of AM broadcast throughout the territory. RTHK will in parallel closely monitor the progress in DRM.

18. RTHK as a public broadcaster will be pushing Hong Kong into the realms of a digital revolution in which service operators no longer work in a limited channel environment of analogue transmission. The public in turn can enjoy better quality of sound broadcasting services in the coming decade.

Radio Television Hong Kong
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