

## ABSTRACT

Indonesia has decided Digital Video Broadcasting–Terrestrial (DVB-T) as the national standard of Digital television (TV). However, this standard has been developed by the European Telecommunications Standards Institute (ETSI) into the Digital Video Broadcasting Terrestrial–Second Generation (DVB-T2). Indonesia also has to migrate to DVB-T2, which also requires evaluation of Bose, Chaudhuri, Hocquenghem (BCH) codes in providing reliable digital TV broadcasting. This undergraduate thesis studies BCH codes for DVB-T2 to find out the structure of a good BCH codes and measures how big the coding gain can be obtained.

This undergraduate thesis evaluates the BCH codes in DVB-T2 and compares them with convolutional codes to measure the gain obtained from each codes for DVB-T2 requiring high rate. This undergraduate thesis also evaluates the BCH codes as outer coding schemes by pairing them with different inner coding, i.e., BCH-convolutional codes and BCH-low density parity check (LDPC) codes, to measure the best inner coding schemes. Furthermore, this undergraduate thesis proposes polynomials for DVB-T2 BCH codes and evaluate the improvement compared to ETSI European Standard (EN) 302 755 to assist real-field implementation.

This undergraduate thesis found that (i) the appropriate outer coding for digital TV applications is BCH codes because BCH codes have large coding gain at high coding rates, (ii) LDPC codes better suit for BCH codes as inner coding because LDPC codes has a strong error-correction capability, (iii) the proposed polynomial of BCH codes for DVB-T2 standard in Indonesia has good performance on the AWGN channel and the Indonesian DVB-T2 channel model. The results of this undergraduate thesis are expected to be a reference and help the development and implementation of Indonesian digital TV.