Part I

Theoretical Performance of Error-Correcting Codes

This part of the book deals with the theoretical performance of error-correcting codes. Upper and lower bounds are given for the achievable performance of error-correcting codes for the additive white Gaussian noise (AWGN) channel. Also given are bounds on constructions of error-correcting codes in terms of normalised minimum distance and code rate. Differences between ideal soft decision decoding and hard decision decoding are also explored. The results from the numerical evaluation of several different code examples are compared to the theoretical bounds with some interesting conclusions.