

**APPLICABLE MATHEMATICS: ITS PERSPECTIVES
AND CHALLENGES (BOOK)
PROCEEDINGS OF THE INTERNATIONAL
CONFERENCE ON RECENT ADVANCES IN
MATHEMATICAL SCIENCES
NAROSA PUBLICATION HOUSE
2001
277-284**

A NEW CLASS OF CODES TO CORRECT AND DETECT BYTE ERRORS

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In this paper we introduce a new class of codes called Dual Purpose Maximum Rank Distance Codes (DPMRD codes). The DPMRD codes are constructed using two outer MRD codes and a specified number of binary, all Unidirectional Error Detecting Codes (AUED-codes). These codes are not RD codes or binary codes and are independent of the minimum distance which is a unique feature enjoyed by these codes. Here we describe the encoding and decoding procedure of DPMRD codes and it is worth mentioning that the decoding procedure makes use of error and erasure techniques of MRD codes.

We prove, “Let $C(n, k)$ be a (n, k, d) MRD code. Then $C(n, k)$ corrects at most t erasures and detects more than t erasures where $t = [(d - 1)/2]$.”

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