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WEIGHTED E – OPTIMALITY CRITERIA FOR COMPARISON OF BALANCE INCOMPLETE BLOCK DESIGN

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ABSTRACT

This paper investigates conditions under which balanced incomplete block designs enjoy weighted optimality with E-criterion establishing weighted intervals for E–optimal design. More so, a neighbourhood of weights for grouped generalised divisible designs (GGDDs) maintaining E_w – optimal in D (v, b, k) was also investigated. The E-criterion was shown to be closely related to efficiency balance. Bounding arguments that are important tools in tackling E-optimality problems was employed; the standard bounds were generalized for seeking E-weighted optimal (E_W-optimal) designs. The optimal bound established the best conceivable values of the criterion and thus the designs with these best values are optimal.

KEYWORDS: Weighted Optimality, Incomplete Block Design, Group Generalised Divisible Design, Bounding Arguments, Weighted Intervals