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## E-OPTIMALITY OF SOME ROW AND COLUMN DESIGNS

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Abstract. In this paper we consider experimental settings where v treatments are being tested in  $b_1$  rows and  $b_2$  columns of sizes  $k_{1i}$  and  $k_{2j}$ , respectively,  $i = 1, 2, ..., b_1, j = 1, 2, ..., b_2$ . Some sufficient conditions for designs to be E-optimal in these classes are derived and some necessary and sufficient conditions for the E-optimality of some special classes of row and column designs are presented. Examples are also given to illustrate this theory.

Key words and phrases: E-optimality, orthogonality, balancing, connectedness, block design, row and column design.