A KRONNECKER-PRODUCT DESIGN AND ITS REDUCIBLE ASSOCIATE CLASSES

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Abstract: Using incidence matrices $N_i$ of balanced incomplete block (BIB) designs and their complementary incidence matrices $N_i^*$ for $i = 1, 2$, a partially balanced incomplete block (PBIB) design in the form $N_1 \otimes N_2 + N_1^* \otimes N_2 + N_1 \otimes N_2^*$ is dealt with. Necessary and sufficient conditions for this rectangular PBIB design to be reducible to 2-associate PBIB designs are discussed. It is also shown that this type of designs is not reducible to any group divisible PBIB design.

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