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Optimal Balanced Fractional 3^m Factorial Designs of Resolution V and Balanced Third-Order Designs

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Contents

0. Introduction and summary

Fractional factorial designs were first introduced by Finney [18] in an agricultural setting. The theory has found increasing use in various fields of experimentations, and further developed in orthogonal fractions in which estimates of the effects of interest are mutually uncorrelated. However, orthogonal fractions are available only for special values of the number of assemblies (or treatment combinations) and are generally uneconomic in the sense that they involve more than the desirable number of assemblies. In this sense, one needs to consider non-orthogonal (or irregular) fractions as well (cf. [4]). The class