

Some Small 4-GDDs

Dinesh G. Sarvate*, College of Charleston, Dinkayehu M. Woldermariam, Adama Sc. and Tech. University.

t -(v, k, Λ) designs and t -Group divisible designs are well known objects of study. t -GDDs where the number of groups is less than the block size have only recently started getting some attention. After a short survey of t -GDDs where the number of groups is less than the block size, we will present some small examples of 4-GDDs with block size 5 and two groups and prove that the necessary conditions are sufficient for group sizes 3,4,5,6,7,9 and 10. Though the necessary conditions for the existence of t -designs are well known, the actual spectrums for 4-($v, 5, \Lambda$) and for 4-GDD($n, 2, 5, \Lambda_1, \Lambda_2$) are obtained as a ready source for researchers interested in the constructions of such designs.

Keywords: t -designs, t -GDDs, 4-($v, 5, \lambda$)