

ABSTRACT

Let f be a bounded real-valued function defined on the bounded open (or closed) set in \mathbb{R}^s , $s \geq 1$. H. Neiderreiter [5] introduced a method for estimating its extreme values on its domain. Many modifications of the method have been studied. The performance of these algorithms rest entirely on the dispersion, a measure of denseness of the sequences employed.

In the thesis of P. Peart [10], an explicit formula for the dispersion of the Hammersley sequence, with radix $R=2$, in the unit square was derived. In this work, this result is generalized to arbitrary radices $R \geq 2$. Furthermore, estimates for the dispersion of the s -dimensional version of Hammersley and Halton sequences in the s -dimensional unit cube is derived. These estimates reveal that the dispersion of both these sequences, attain the minimal order of magnitude. For any fixed number N , of points, it is shown how to select the radices for these sequences in order to obtain the least value for the dispersion.

Finally, it is shown how to achieve more accurate values for certain Lipschitz constants arising from the transformation used to map a sequence from the s -dimensional unit cube into another domain.