multiplier $k \geq \sqrt{p}$, which satisfies the equation $k^3 = 2 \mod(p)$ where the modulus $p = 99707$. Hence we would expect this generator to fail the serial test with lags 3 and 6. Other large multipliers have also been tested and most of them appeared satisfactory. The last 2 generators in Table 1 use a small multiplier $k$, and as will be seen from the results of the serial test with lag 1 and Test 6—Runs up and down, these generators cannot be considered as acceptable. Test 6 was found to be a very useful and sensitive test and it is surprising that it has so rarely been used.

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References