Referee's report on
"Study of characteristics of CUSUM-procedure in the change point problem"
by V.I. Lotov and A.S. Tarasenko

The main purpose of the paper is to derive upper and lower bounds for probabilities that a random walk leaves a an interval of fixed width through upper (or lower) boundary point. Such estimates can be used to study error probabilities in the change point problem.

I think that the paper can be of interest for specialists in statistics and deserves to be published in SIMR.

Major remarks:

- All obtained bounds seem to be consequences of already known in the literature estimates. This fact does not make them less important, but I would prefer to call the results 'Propositions', not 'Theorems'.
- At two places in the paper, the authors refer to mysterious 'results of computer analysis' without giving any concrete results of simulations. This looks really strange, in particular for a paper with emphasis on applications. There are two options: either the authors remove that sentences or they provide concrete results(e.g. tables) of simulations.
- The bound obtained in the paper do depend on the truncation levels c_1 and c_2. These two parameters, are chosen to be bigger than b and b, in its turn, should be chosen quite large. This implies that the bounds obtained in the paper depend in highly non-trivial way on b. This can be seen by looking at the definition of the Cramer parameter μ on page 6; the value of μ depends on c_1. Consequently, c_1 affects the lower and upper bound on $Q(x)$, which are crucial for the strategy in the paper. Because of that, it is very important, to derive bound for μ in terms of the truncation level. That would improve the quality of the paper. But I am not insisting on that point, since the implementation can be rather difficult.

Minor remarks:

page 2, line 12: $\mathbf{E}_1$ is not defined;

page 4, line 3: I would rearrange a bit the proof of Lemma. I would start by observing that the trajectories of walks S and S' coincide before the stopping time N. Then one can immediately infer that $N = N'$ and that $\mathbf{P}(S_N \geq b) = \mathbf{P}(S'_{N'} \geq b)$;

page 4, after (6): recall that $c_i \geq b$;

page 4, Section 2: remove the first sentence;

page 4, line -10: I would give more details and explanations on the connection between $\mathbf{E}T$ and the change point problem;

page 5, line -6: replace the word 'sequences' by 'random variables'