

Report on the paper Accelerated Life Testing Model for a Generalized
Birnbaum-Saunders Distribution

by

Yao Cheng and E. A. Elsayed

Response to Referee 1

We would like to thank the reviewer for the detailed comments and valuable suggestions which have been incorporated in the revised paper. The following is point-by-point response to these comments. Our responses are in bold. We also indicate the locations where changes were made in the paper.

Comments and Responses:

1. Punctuation of formulae

Response: Thank you. We have reviewed all formulas and made modifications where necessary, please see all of them.

2. Words that follow formulae have a capital letter (ex: "Where" at many places)

Response: Thank you for pointing this out. We have changed "Where" which follows formula to "where" in this paper.

3. Page 3: define f and R in the first line of the first column

Response: Thank you for this suggestion. We have defined f and R as the probability density function (pdf) and reliability function respectively before using them to obtain the GB-S hazard function. Please see the last line of page 2, column 2.

4. Page 3, col 2: modify "flxible" and "accelrated"; page 4: modify "orcharacteristic" (col 1) and "maxmizing" (col 2)

Response: Thank you for pointing out these spelling errors. We have modified "flxible" to "flexible", "accelrated" to "accelerated", please see page 3, col 2, first paragraph in part "III". We also modified "orcharacteristic" to "or characteristic", "maxmizing" to "maximizing" in page 4, col 1, formula 6 and col 2, first paragraph, line 2.

5. Page 4: the likelihood function (8) could be written with a number of k groups?

Response: The answer is “yes”. Usually we conduct the accelerated test with multi-level or multi-type stress. Assuming m stress type and each stress type has n stress levels, we have $m \times n$ data sets. For each single observation, the failure time has its corresponding stress type and level. The likelihood function of the whole sample can be written as the product of all observations. In our paper, we have two stress level and one stress type. Thus we have two data sets and $i=1,2$.

6. Page 6, col 2: formula $h(Z)= \exp(a_0+a_1z_1)$ is not correct since Z is a vector and z_1 is a real.

Response: Thank you for pointing out the differences of stress vector \underline{z} and specific stress z . Actually the general situation is that $h(\underline{z}) = \exp(a_0 + \underline{a}\underline{z})$ where a_0 is the model parameter, \underline{a} is the vector of stress coefficients and \underline{z} is the stress vector. Here because we only apply a single stress type, the specific case for this paper should be $h(z_1) = \exp(a_0 + a_1z_1)$. We rewrote this part, please see page 6, col 2, part B.