Supplementary Figures

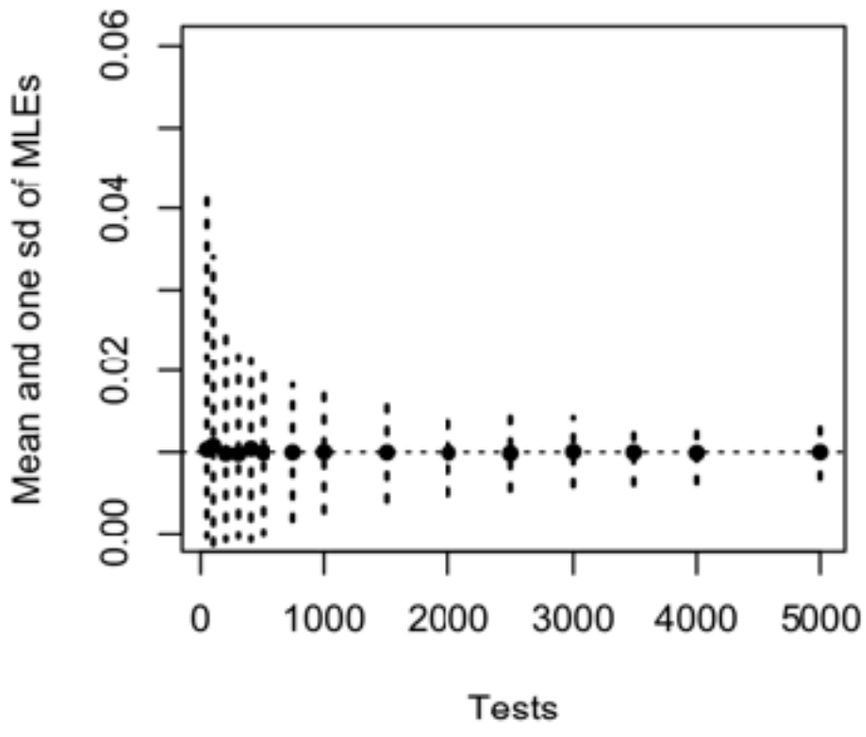
In the main text, we used base-case parameters $f_t = 0.03$, $p_{FN} = 0.3$, and $p_{FP} = 0.05$. In this section, we reproduce Figures 6–9 for different parameters that bracket the base-case parameters of the text: $f_t = 0.01, 0.03, 0.09$; $p_{FN} = 0.2, 0.3, 0.4$; and $p_{FP} = 0.025, 0.05, 0.1$. Including the base-case parameters, there are 27 combinations of parameters. For ease of presentation, we show one four-panel figure (corresponding to Figures 6–9) for each of the parameter combinations.

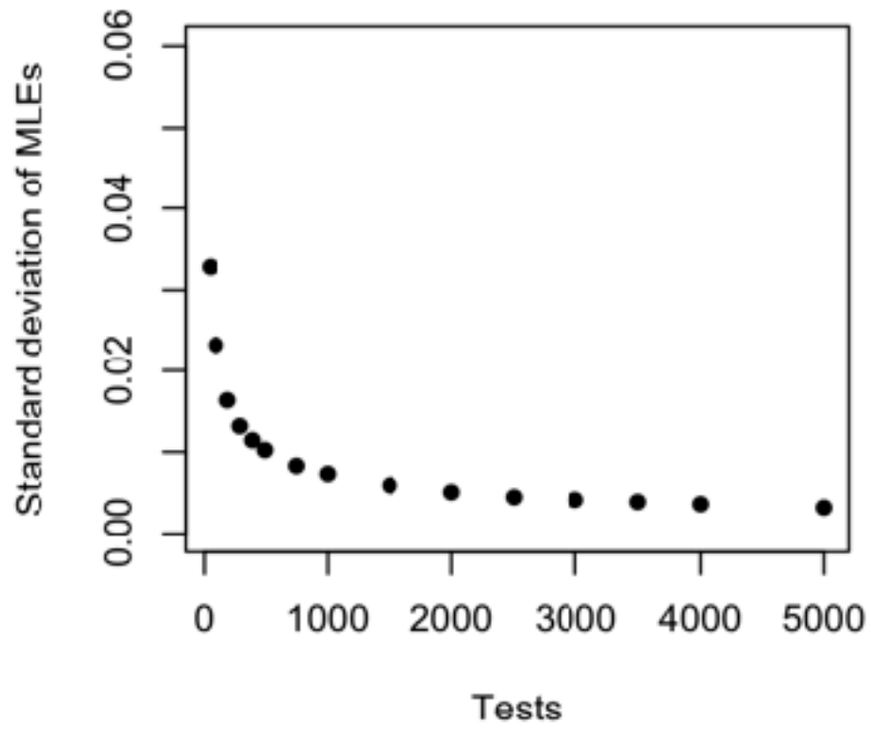
Examination of these figures shows that

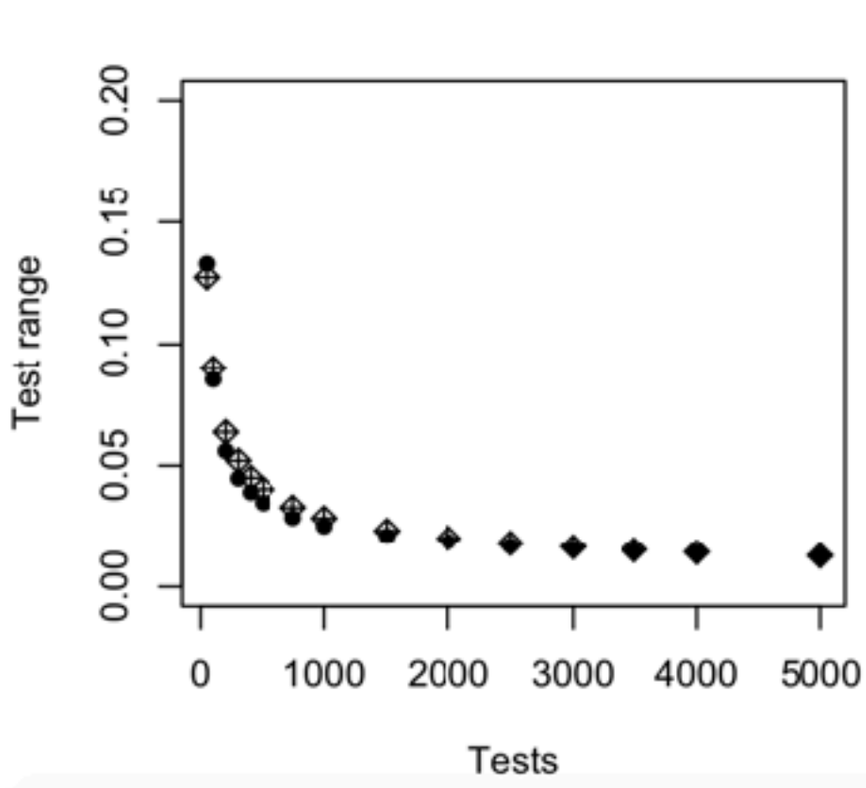
- All of the qualitative patterns described for the base-case parameters are present for each of the alternative parameter sets.
- The methods we developed perform most poorly when $f_t = 0.01$. This is the result of the disease being rarer, and consequently harder to detect.
- Similarly, the method performs most poorly for the largest values of false negative and false positive tests because the information obtained via testing is most degraded.

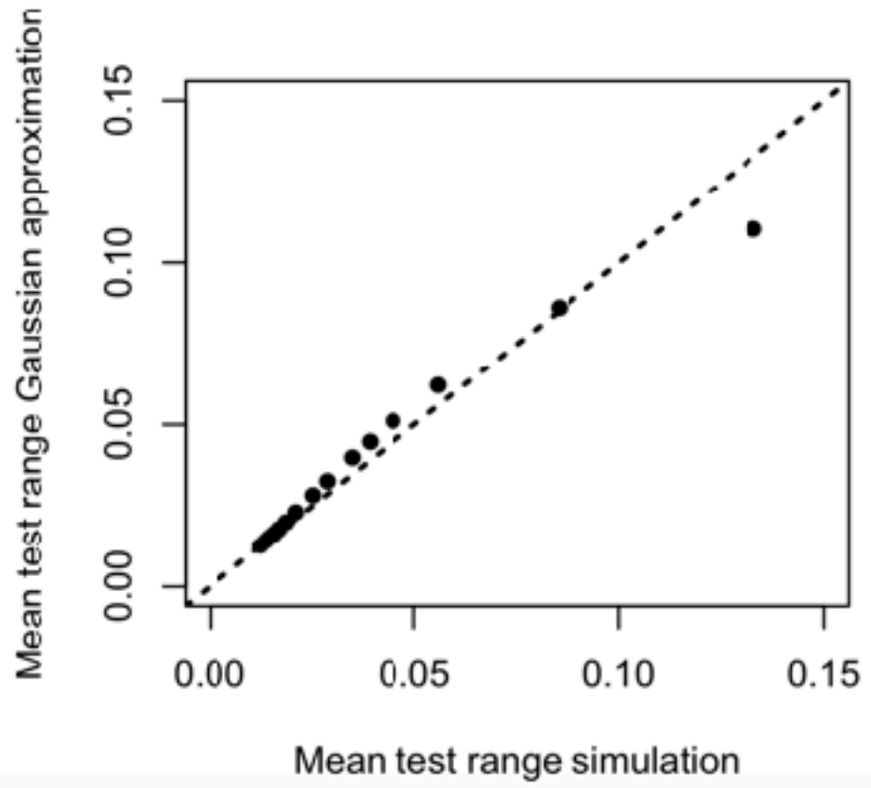
However, the main conclusions remain intact.

Supplementary Figure 1: $f_t = 0.01, p_{FN} = 0.2, p_{FP} = 0.025$

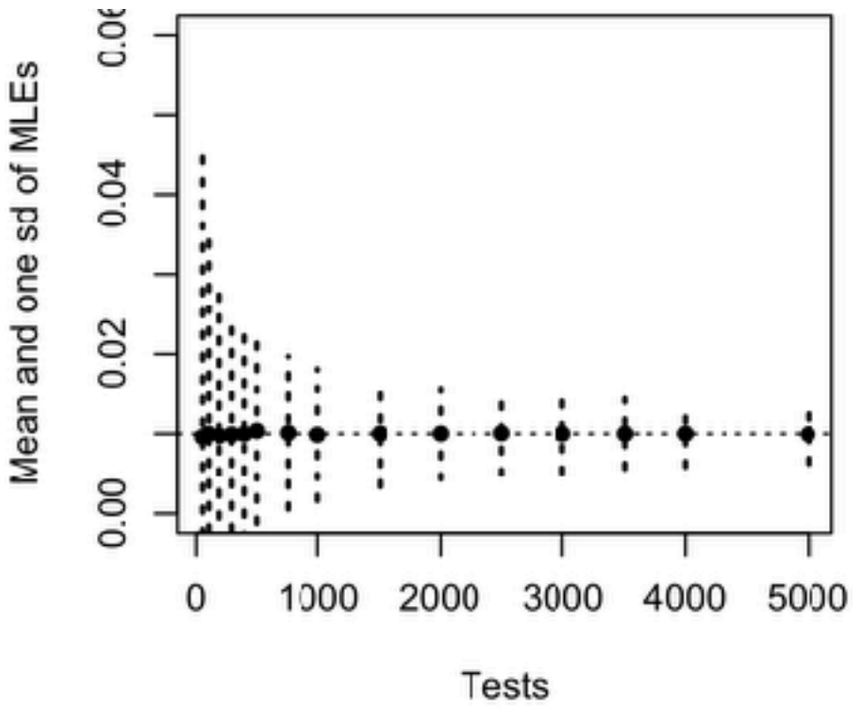


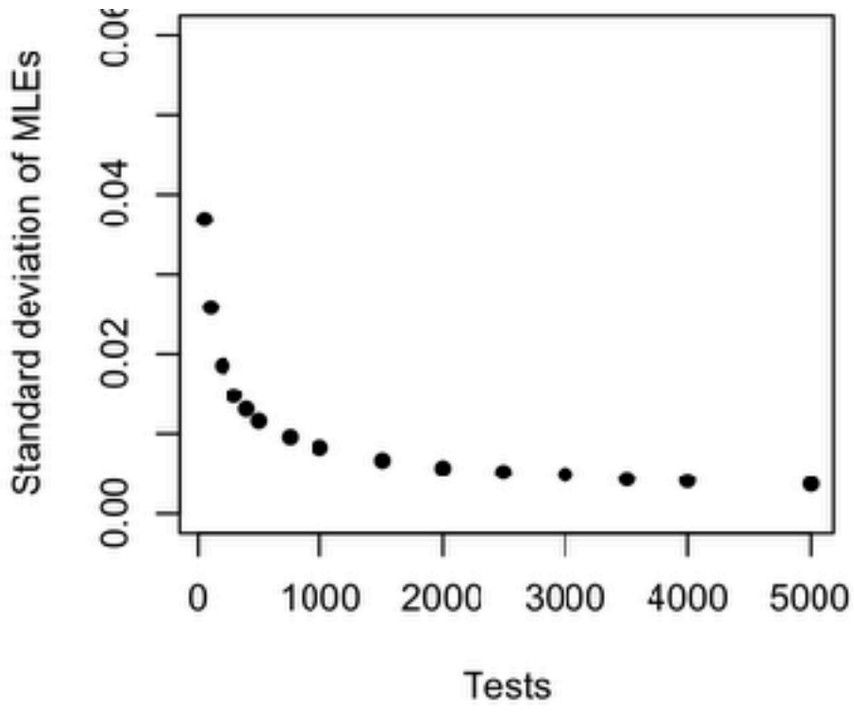


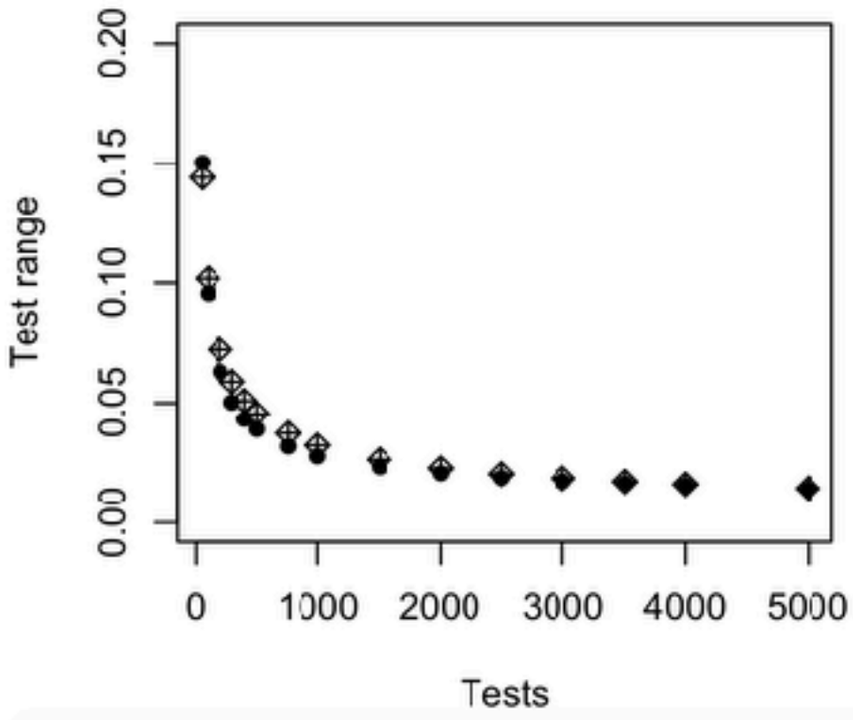


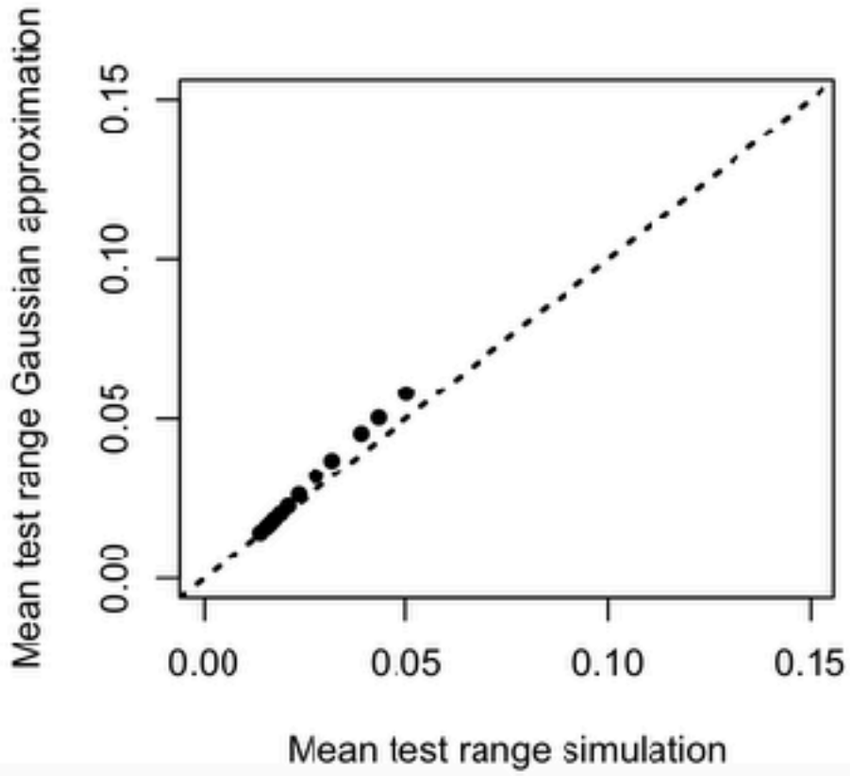


Supplementary Figure 2: $f_t = 0.01, p_{FN} = 0.3, p_{FP} = 0.025$

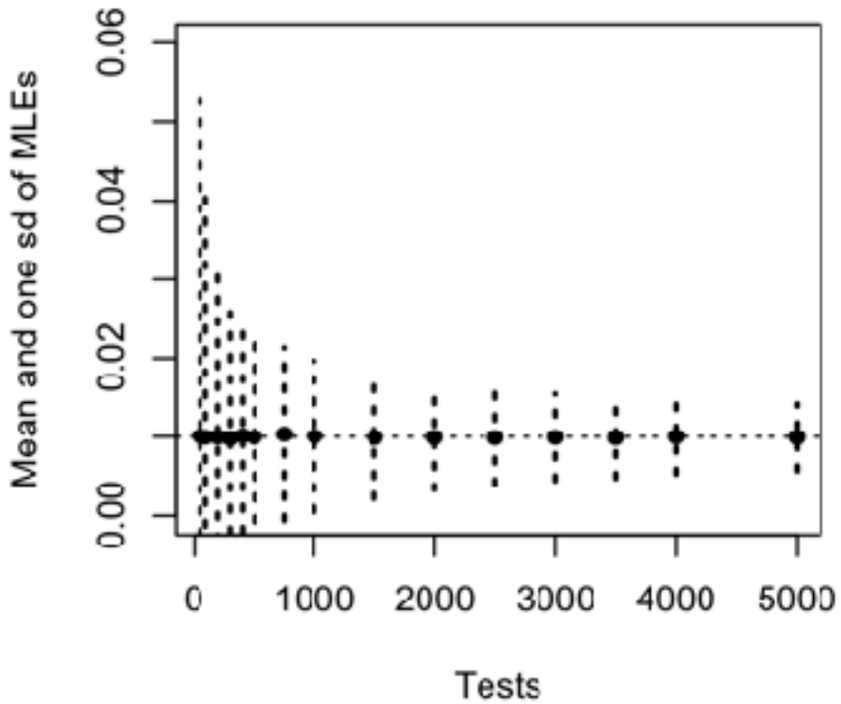


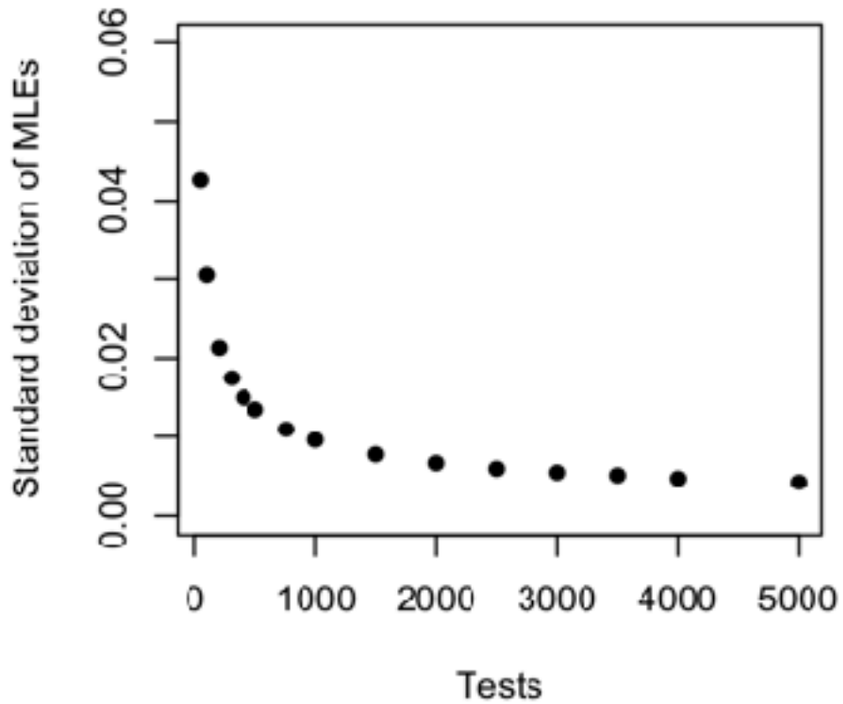


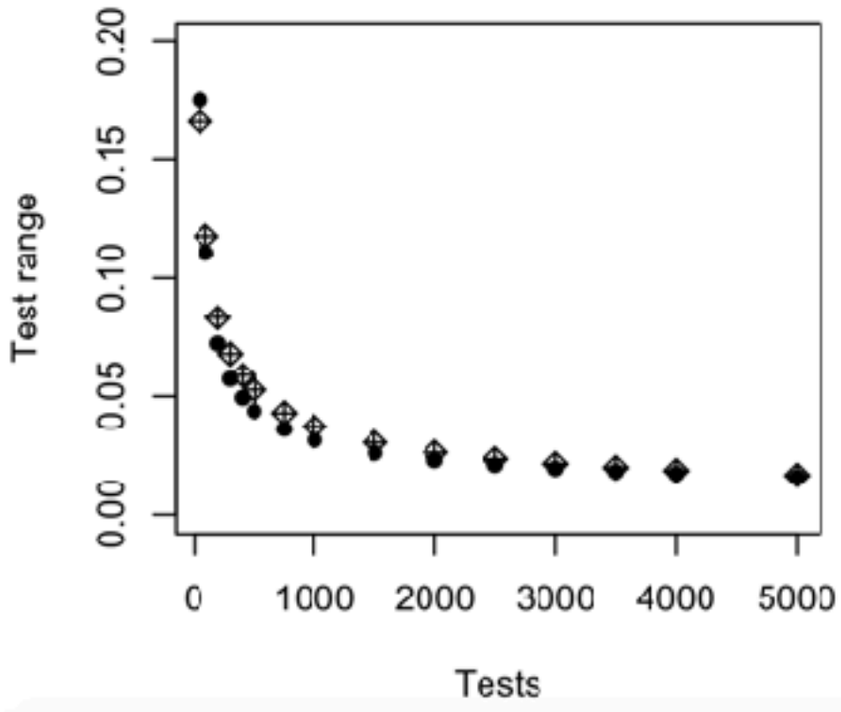


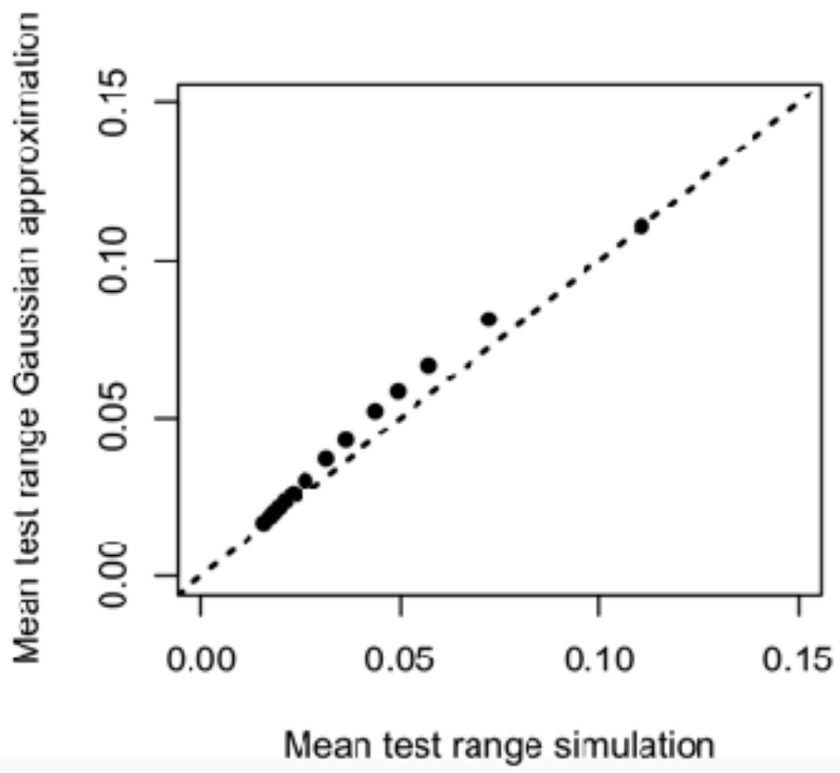


Supplementary Figure 3: $f_t = 0.01, p_{FN} = 0.4, p_{FP} = 0.025$

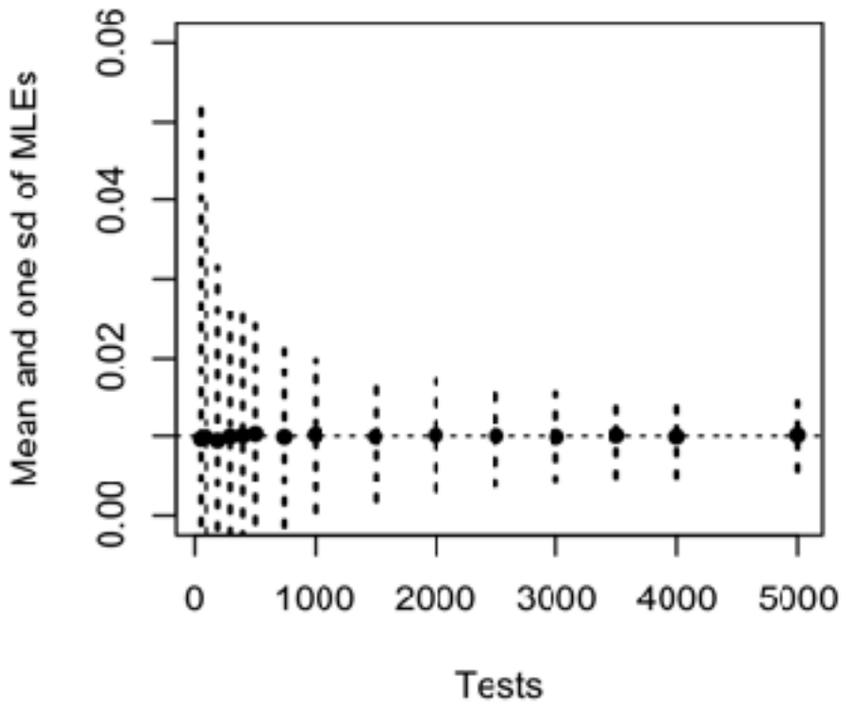


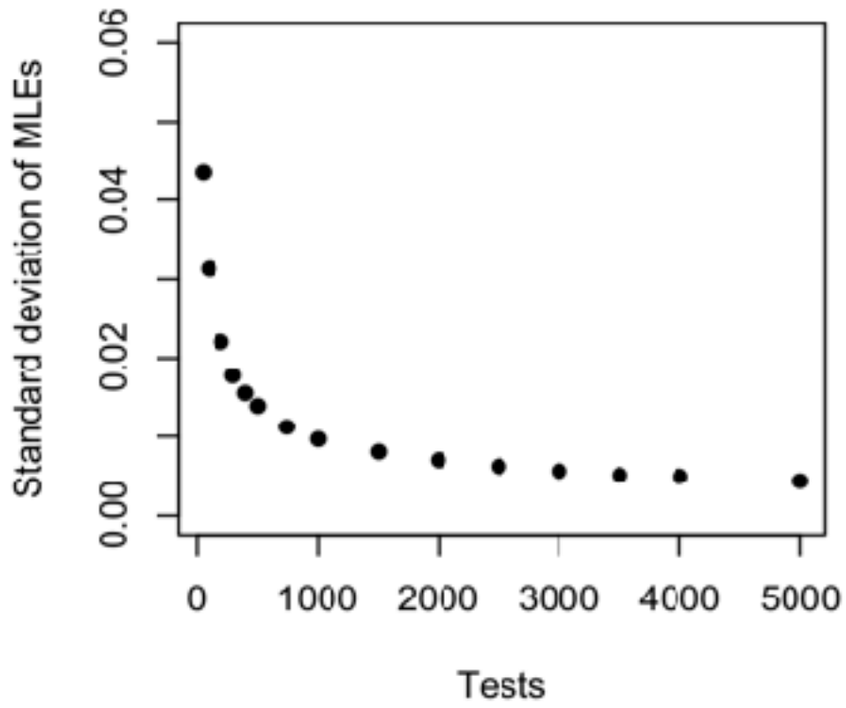


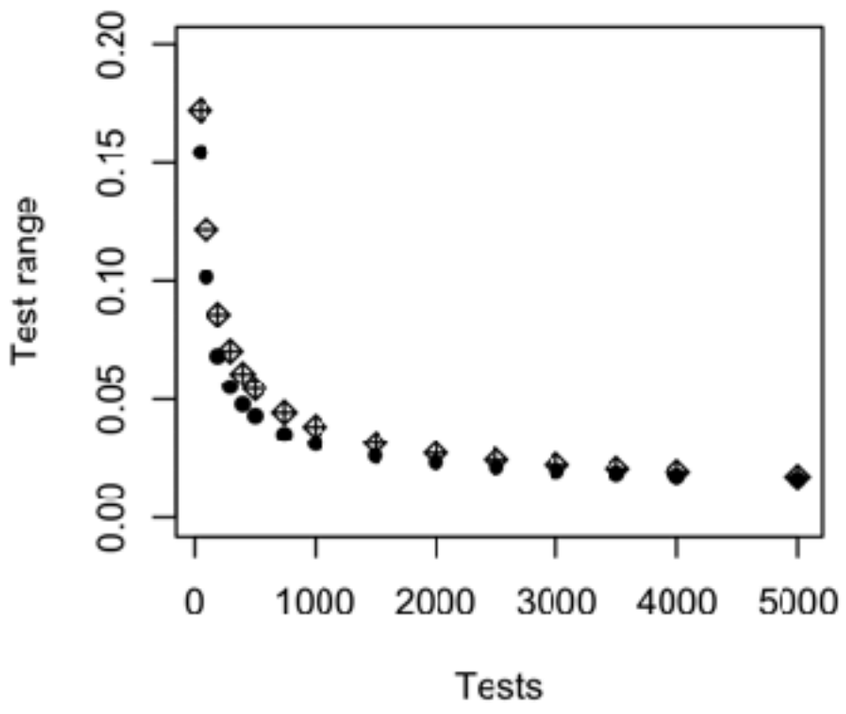


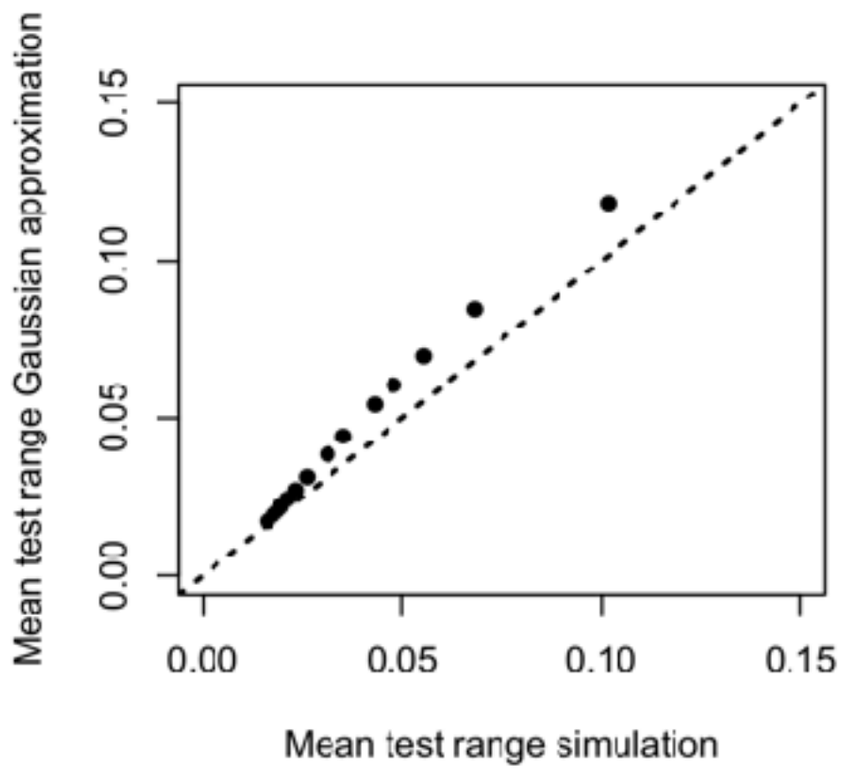


Supplementary Figure 4: $f_t = 0.01, p_{FN} = 0.2, p_{FP} = 0.05$

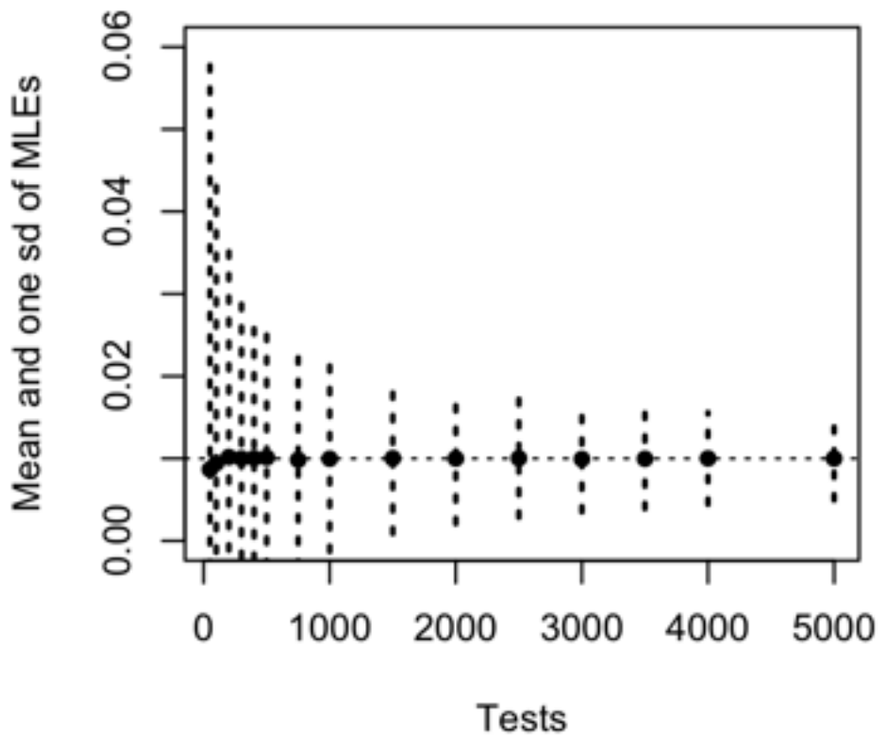


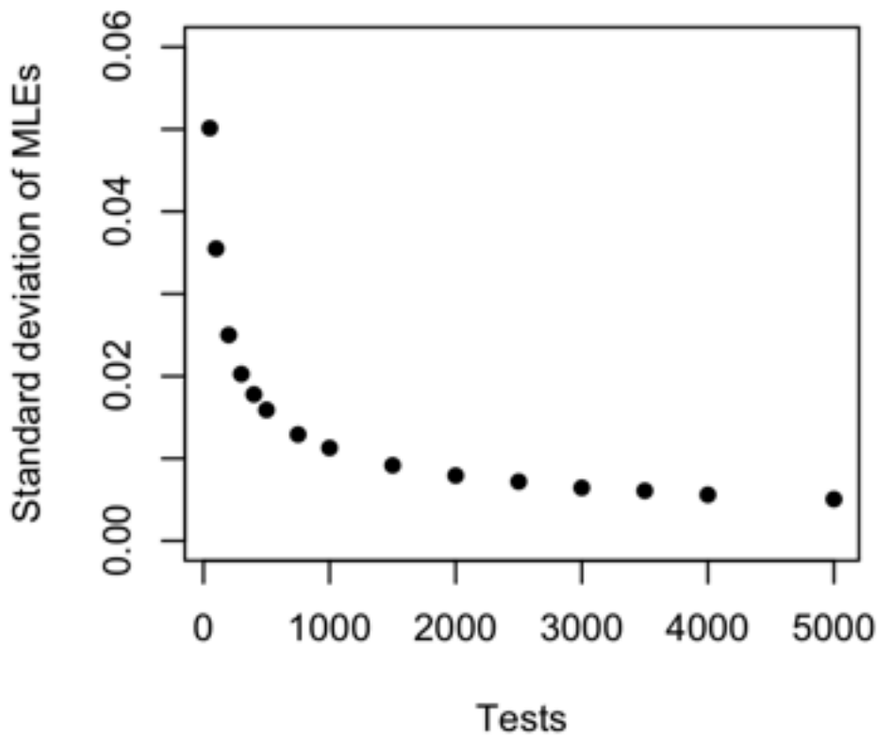


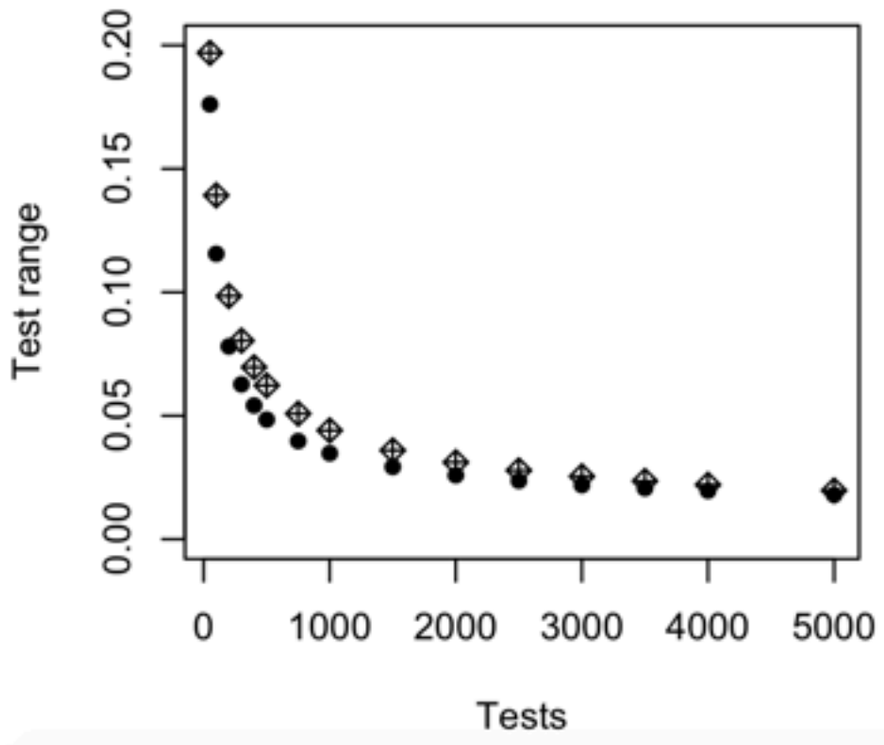


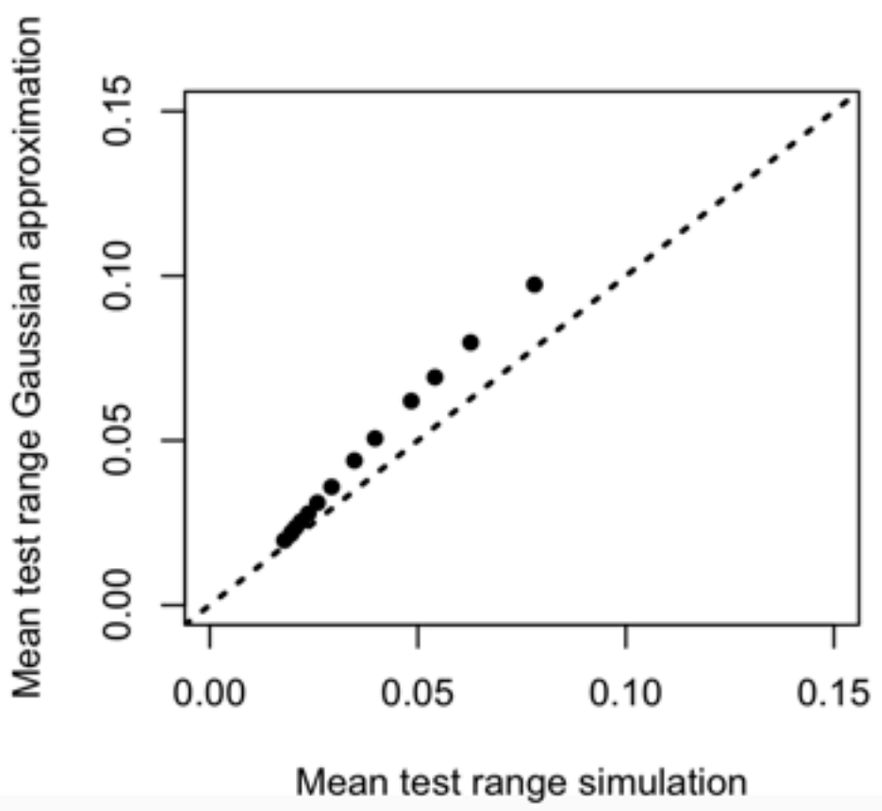


Supplementary Figure 5: $f_t = 0.01, p_{FN} = 0.3, p_{FP} = 0.05$

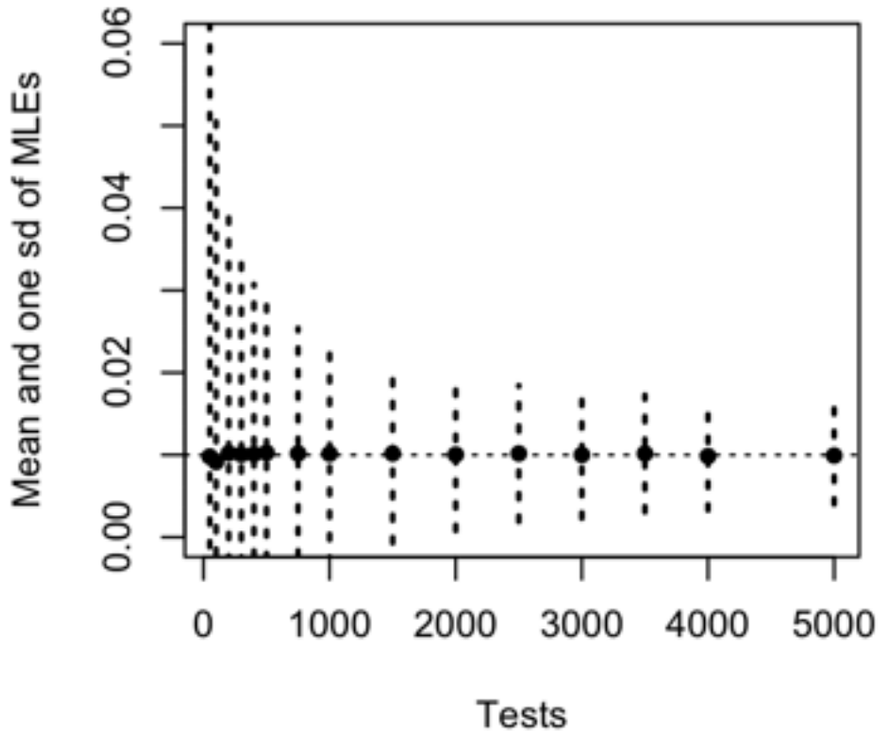


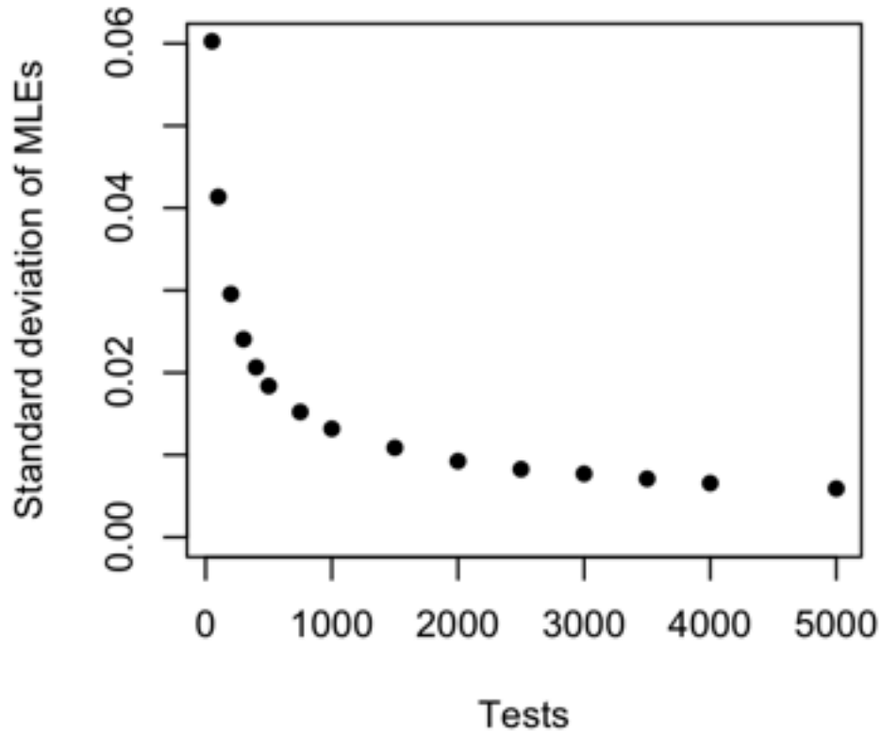


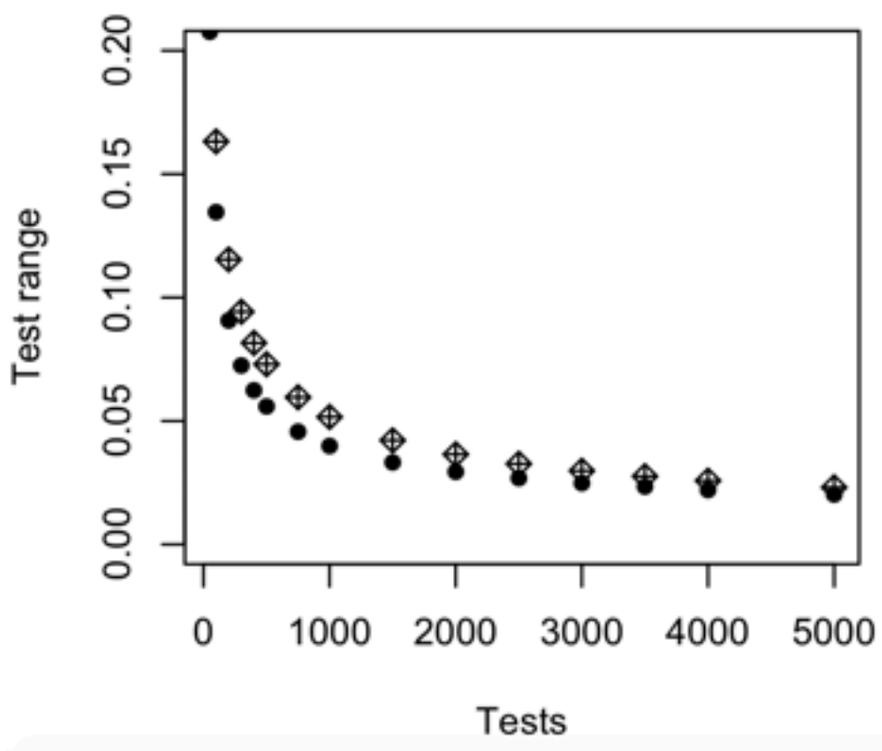


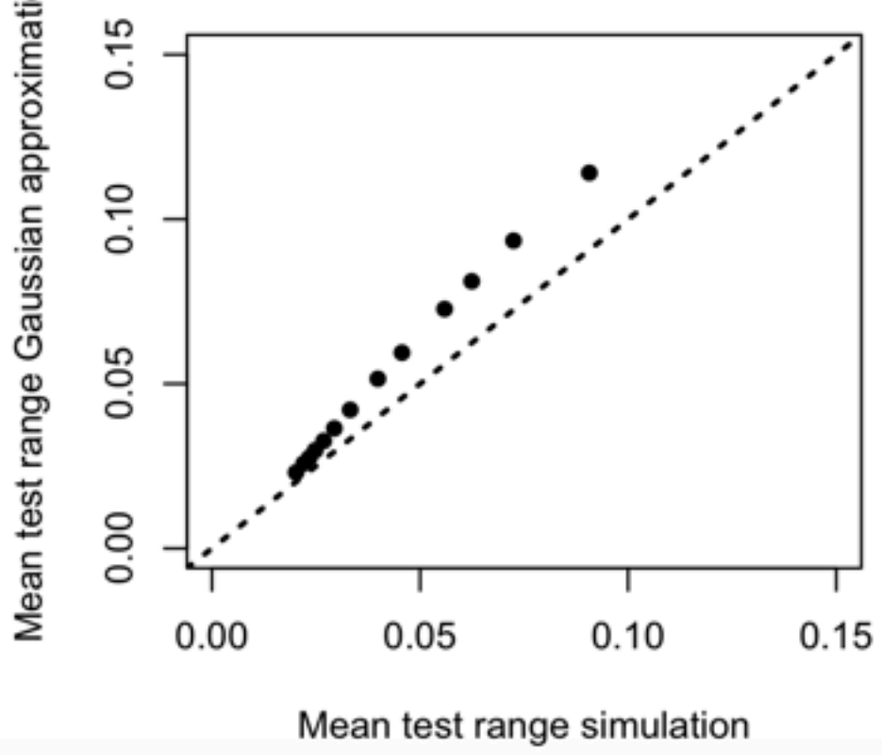


Supplementary Figure 6: $f_t = 0.01, p_{FN} = 0.4, p_{FP} = 0.05$

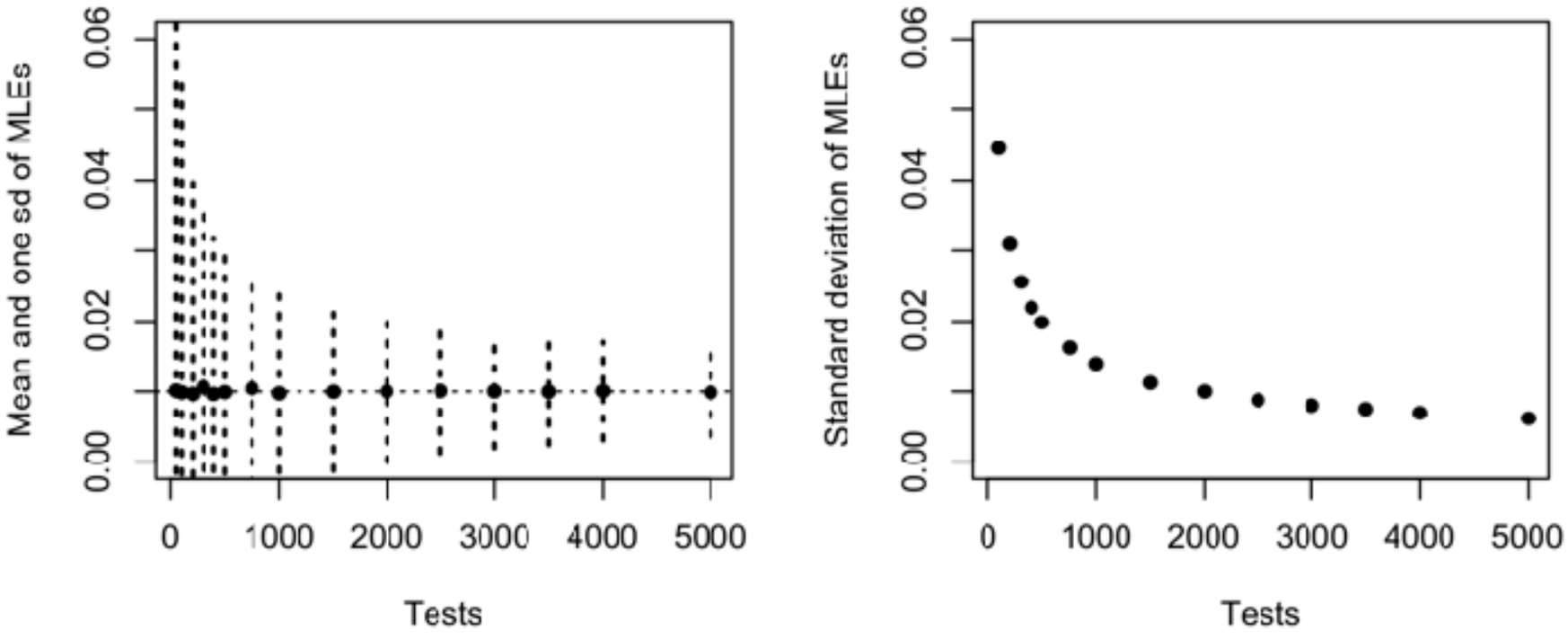


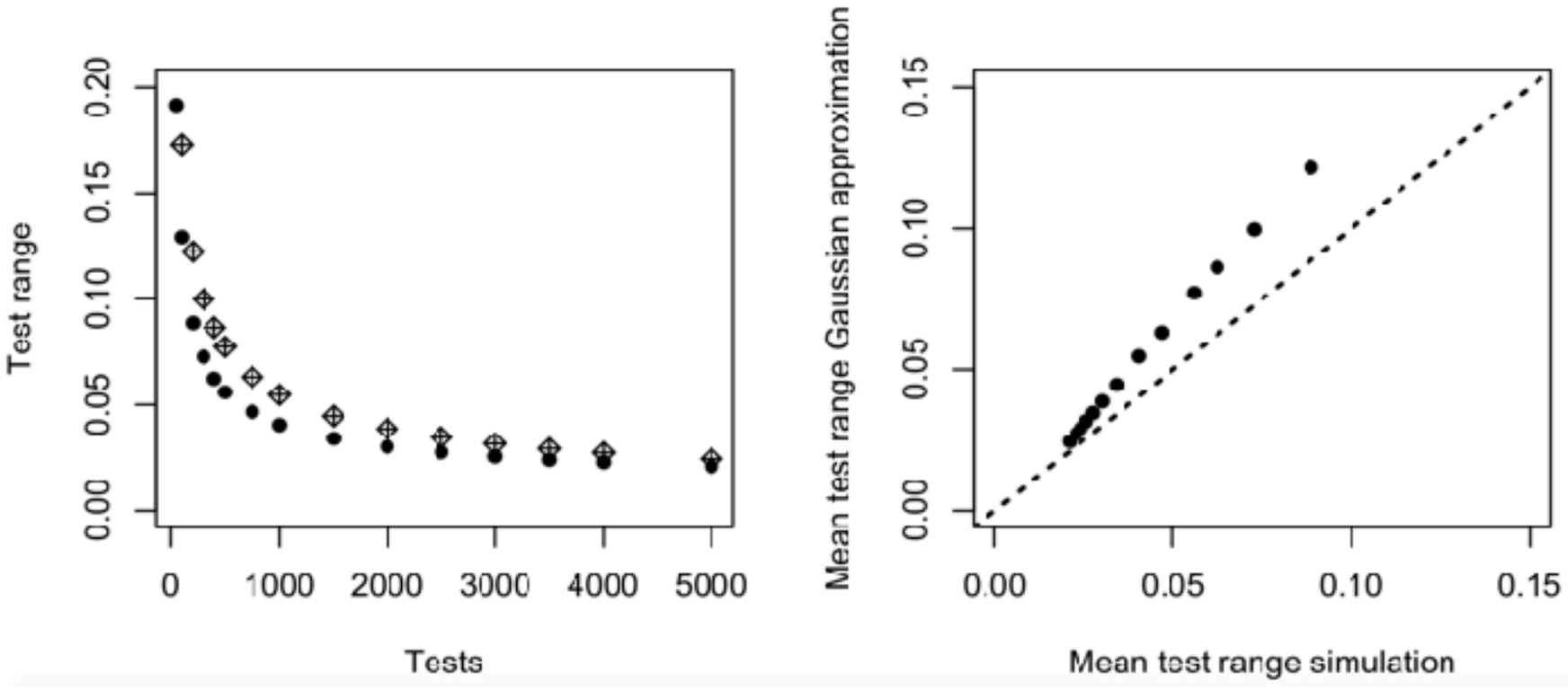




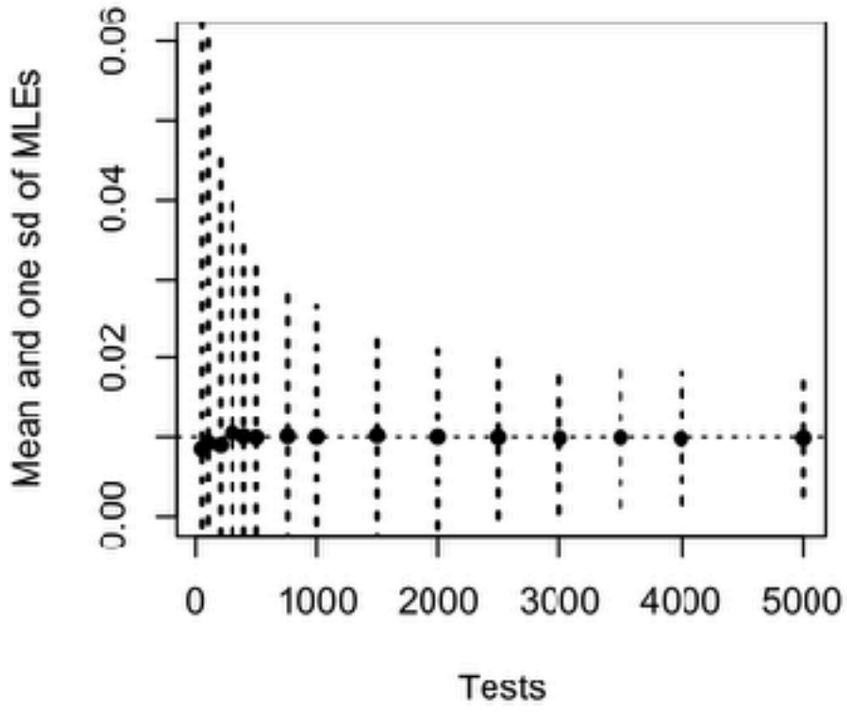


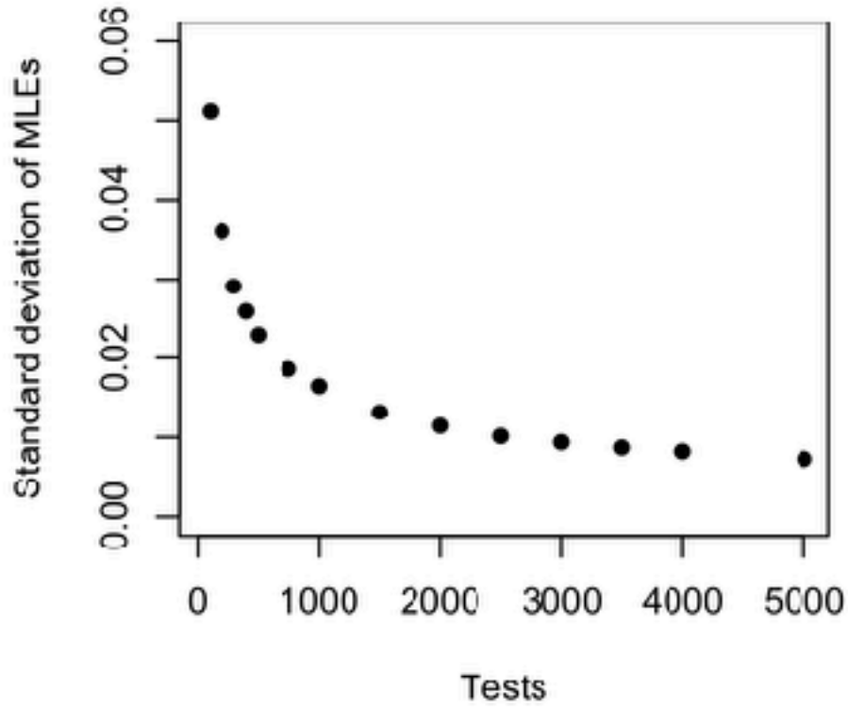
Supplementary Figure 7: $f_t = 0.01, p_{FN} = 0.2, p_{FP} = 0.1$

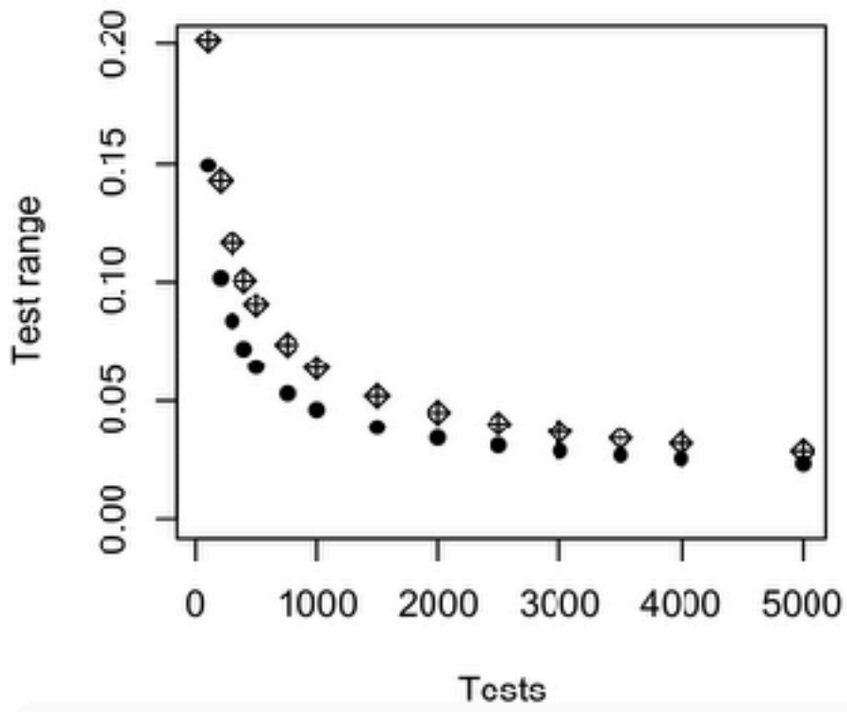


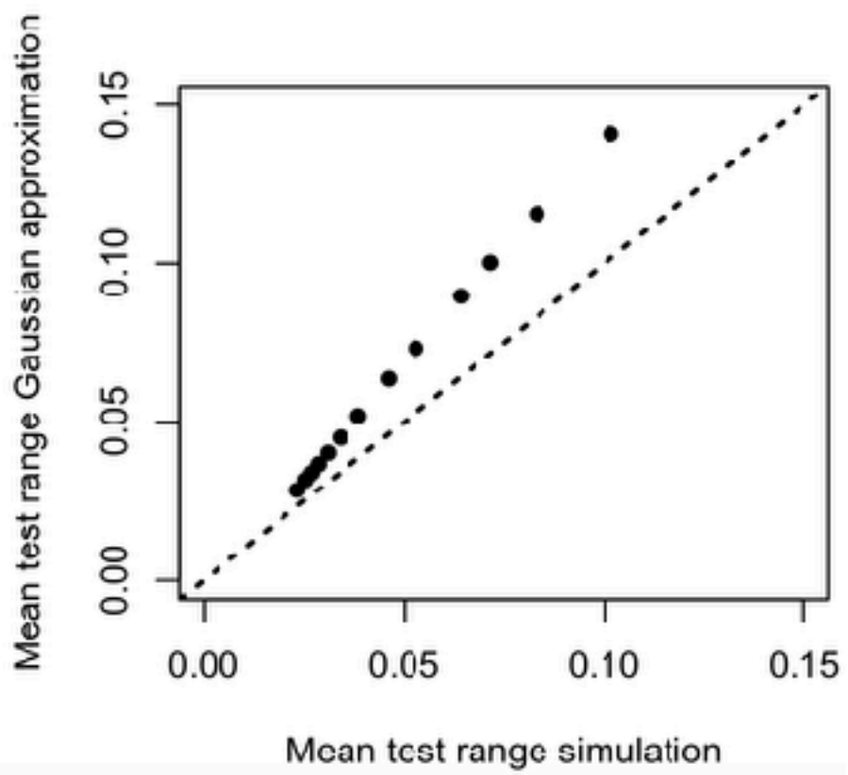


Supplementary Figure 8: $f_t = 0.01, p_{FN} = 0.3, p_{FP} = 0.1$

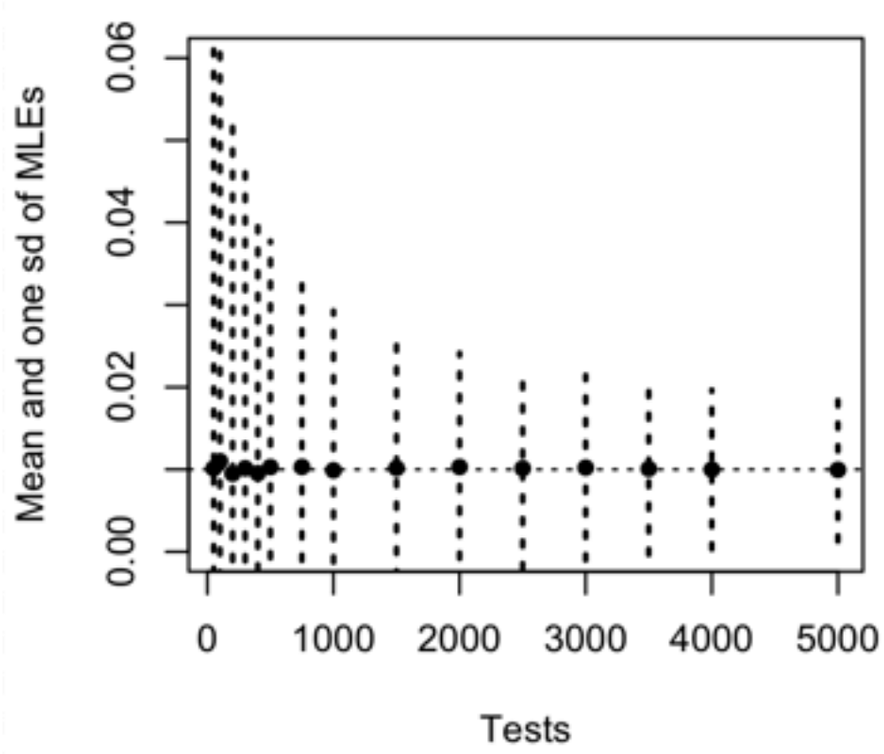


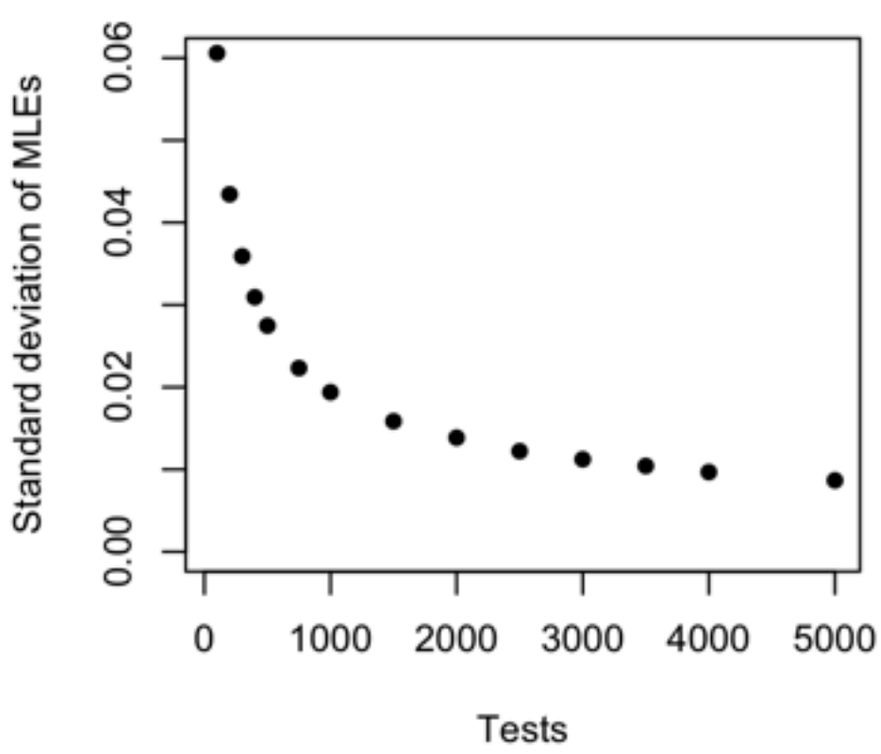


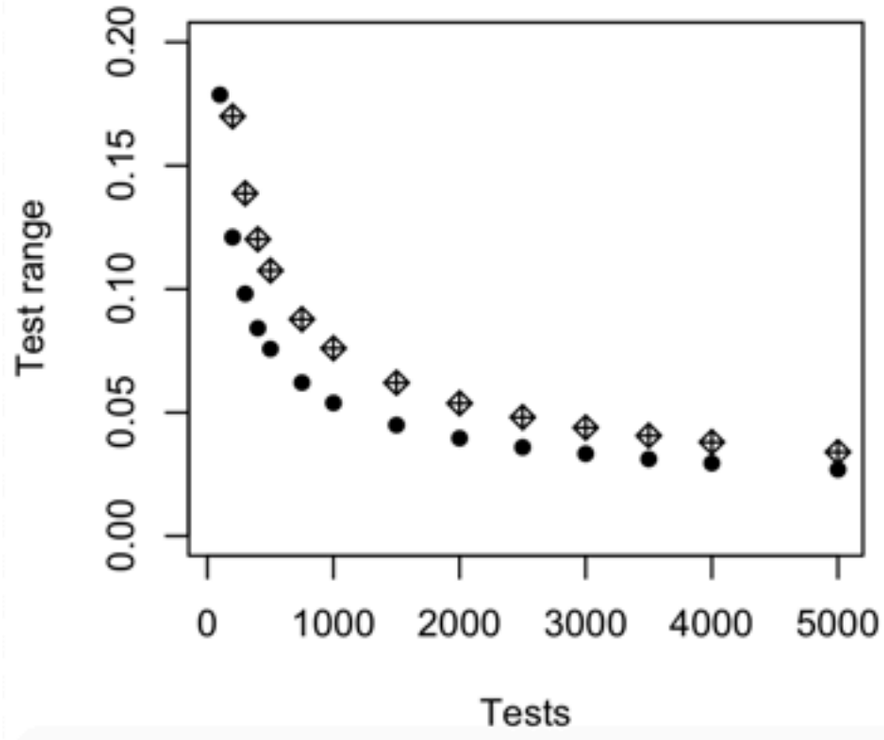


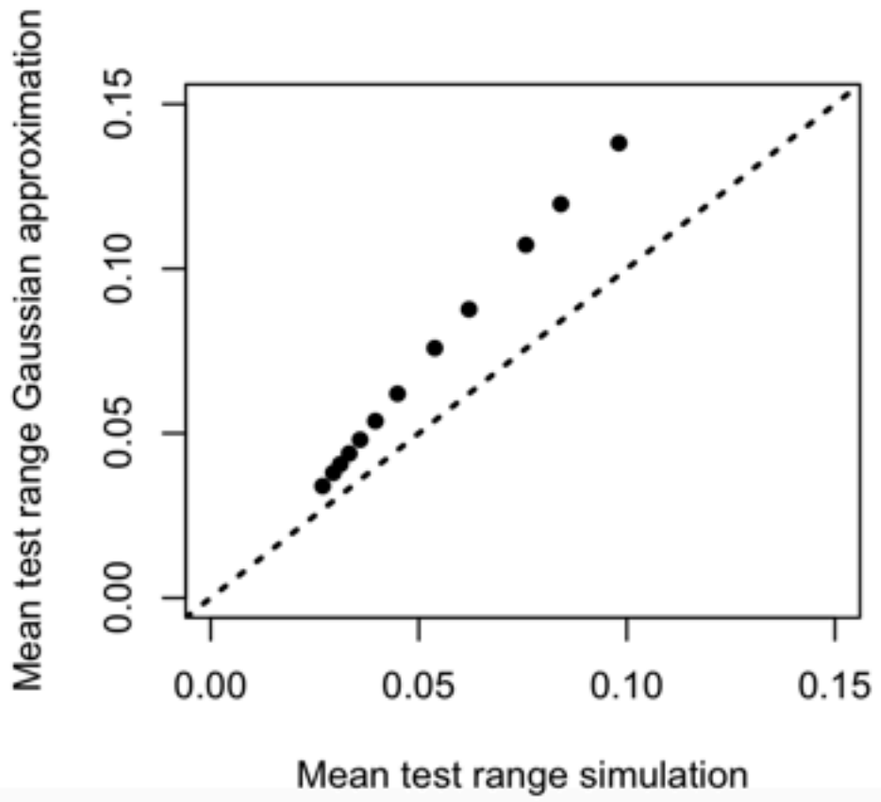


Supplementary Figure 9: $f_t = 0.01, p_{FN} = 0.4, p_{FP} = 0.1$

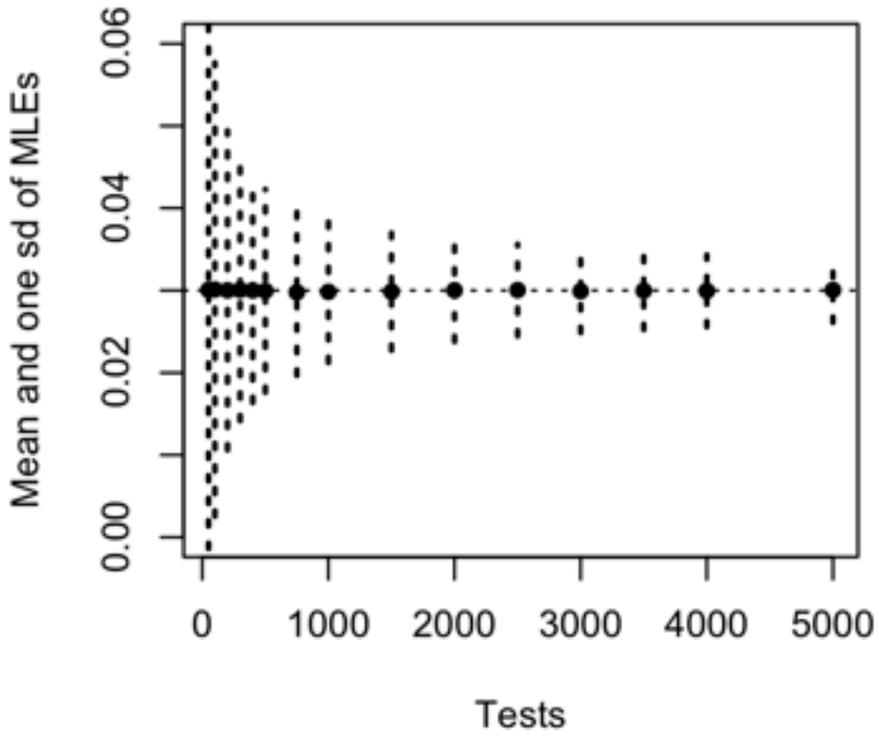


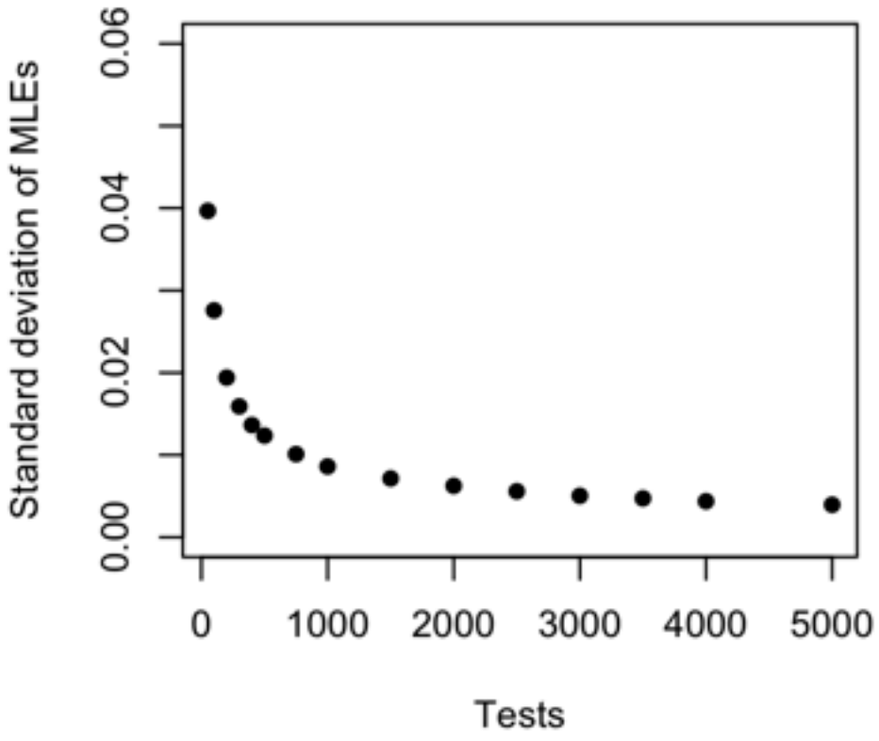


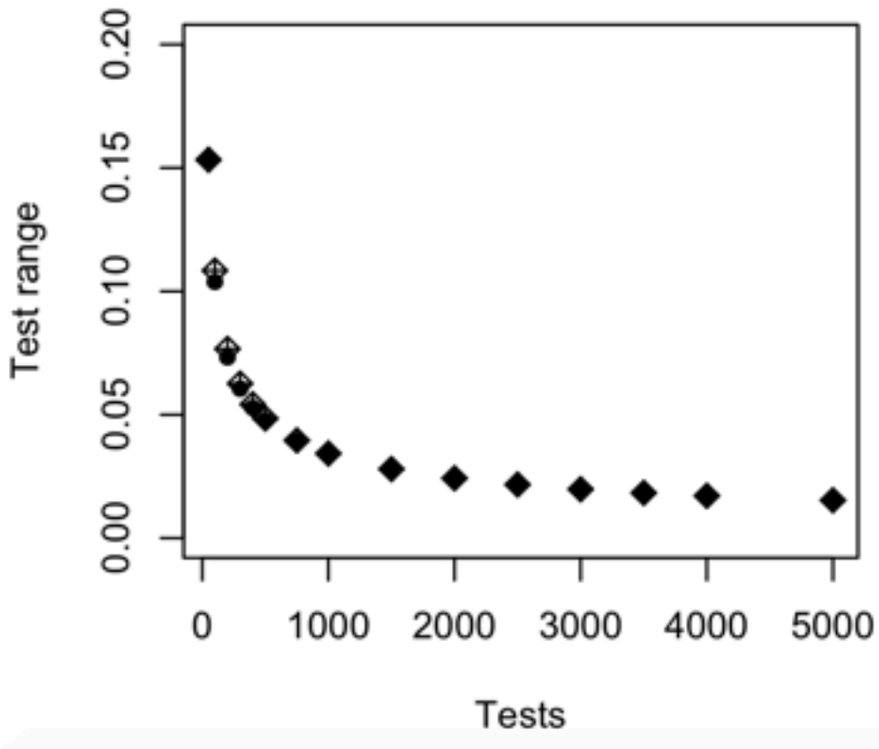


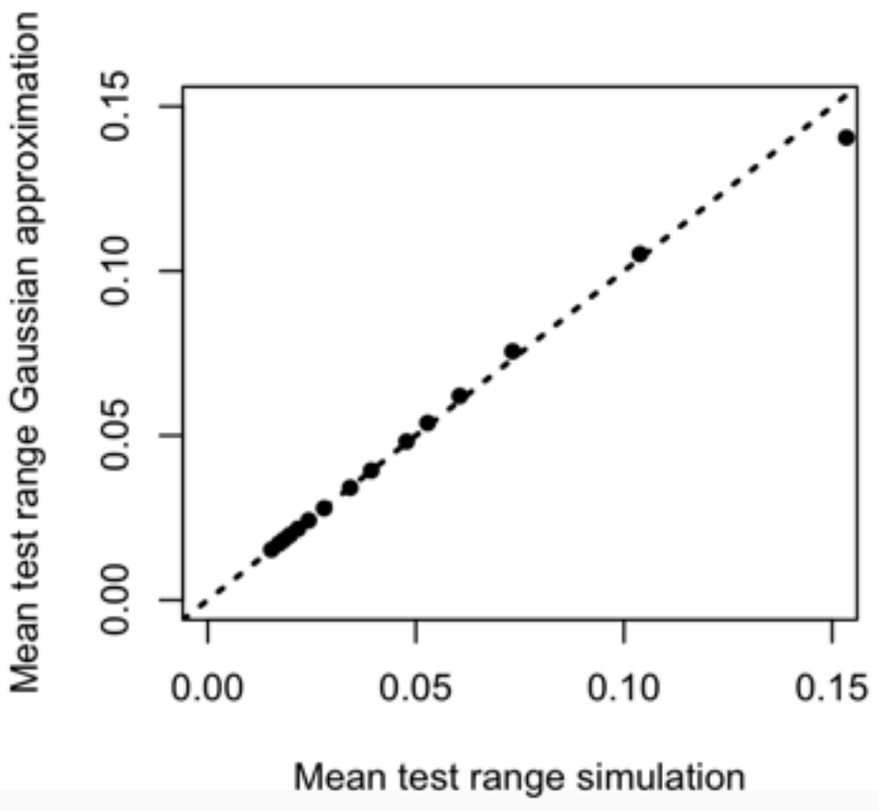


Supplementary Figure 10: $f_t = 0.03, p_{FN} = 0.2, p_{FP} = 0.025$

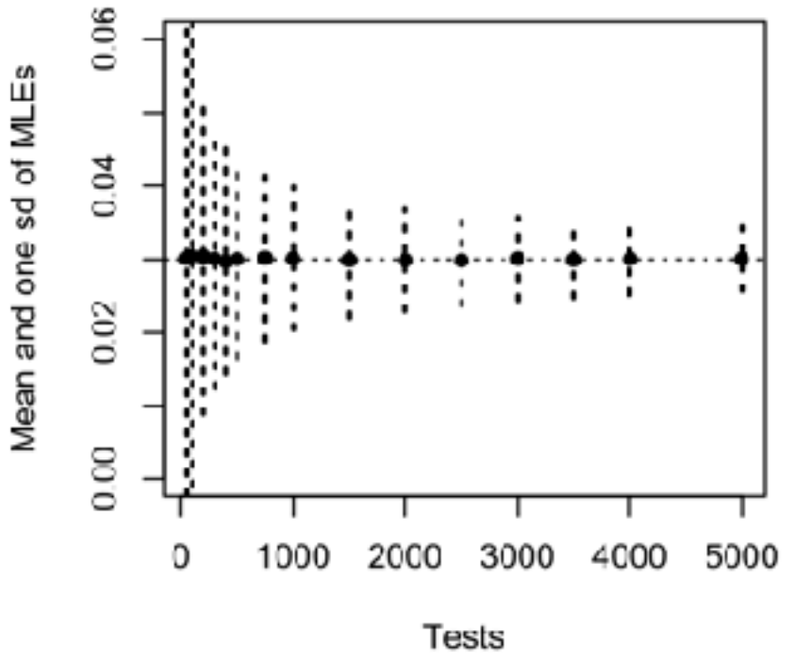


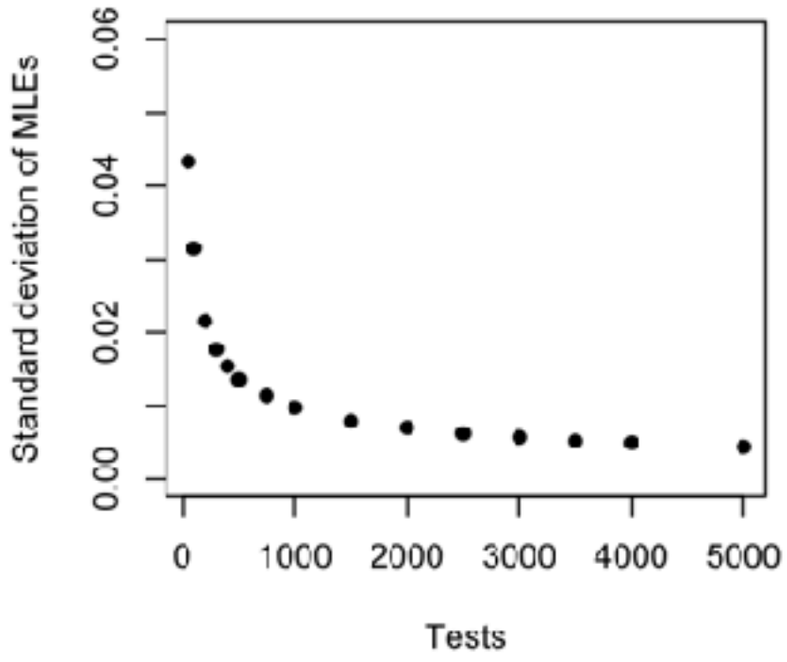


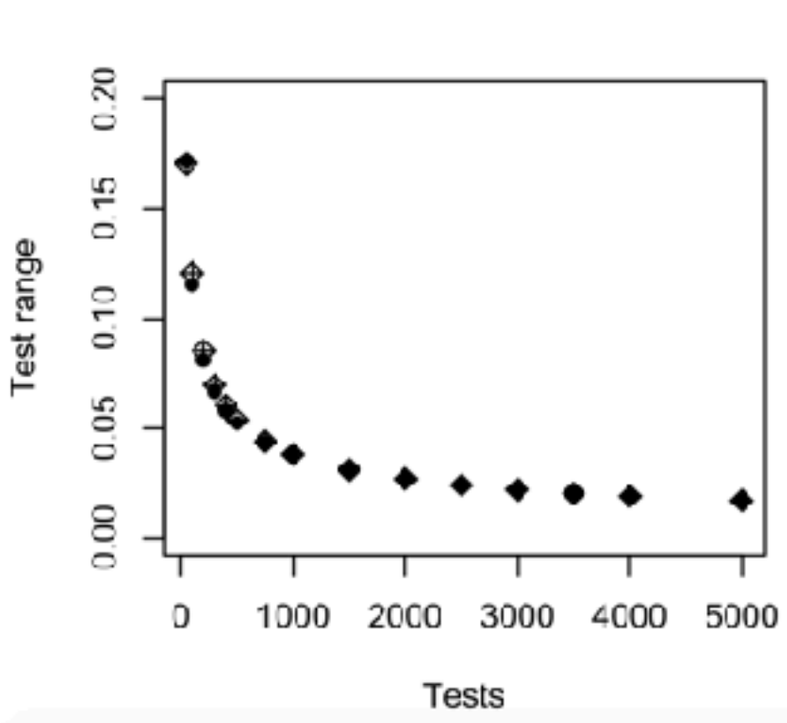


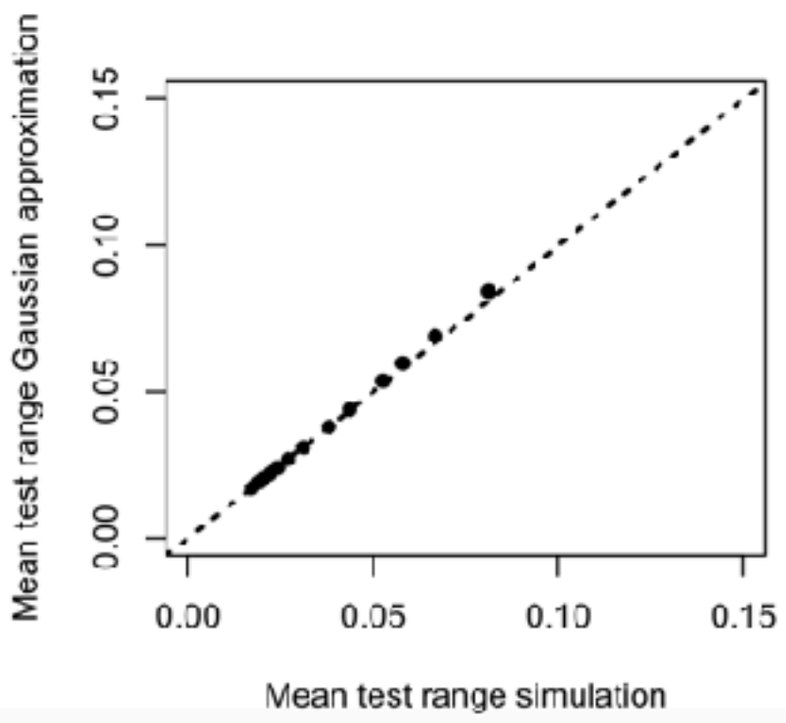


Supplementary Figure 11: $f_t = 0.03, p_{FN} = 0.3, p_{FP} = 0.025$

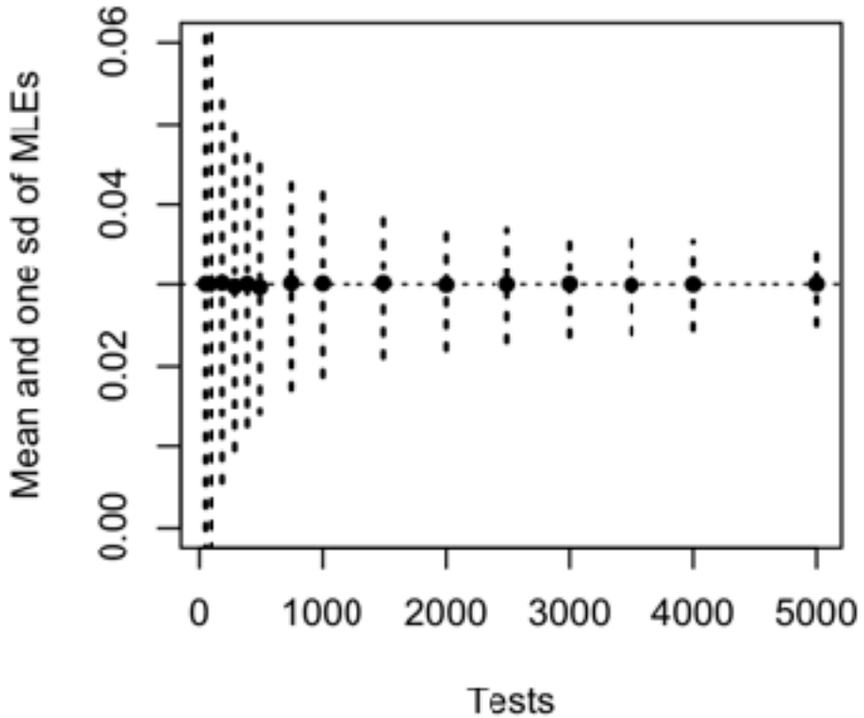


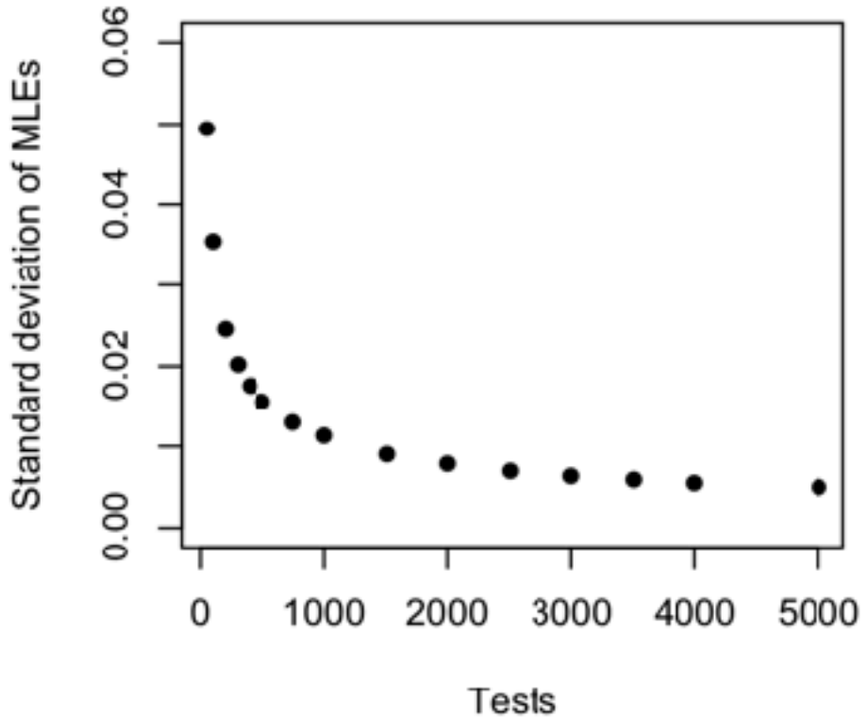


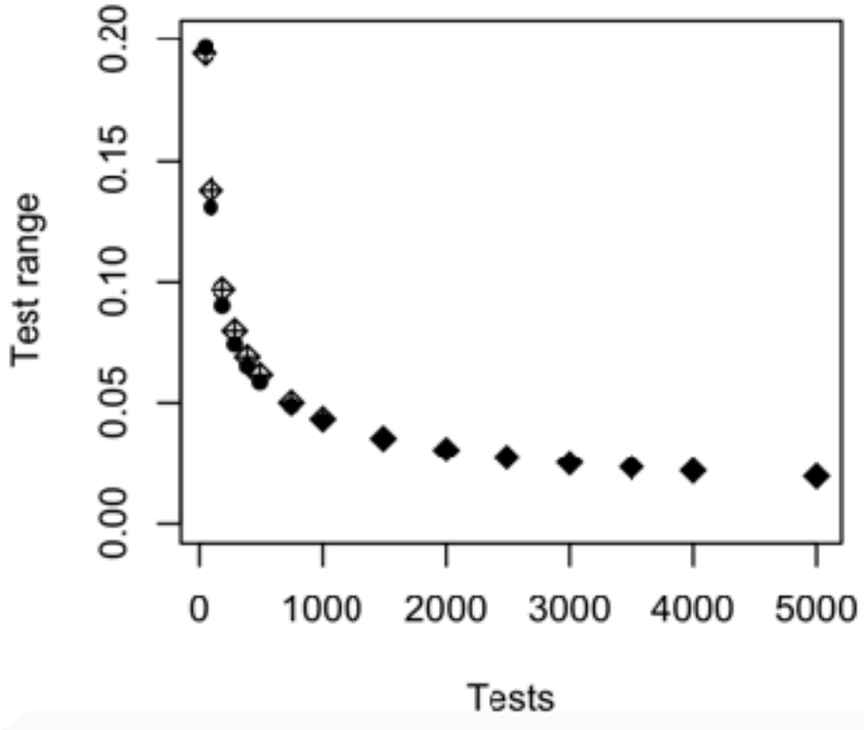


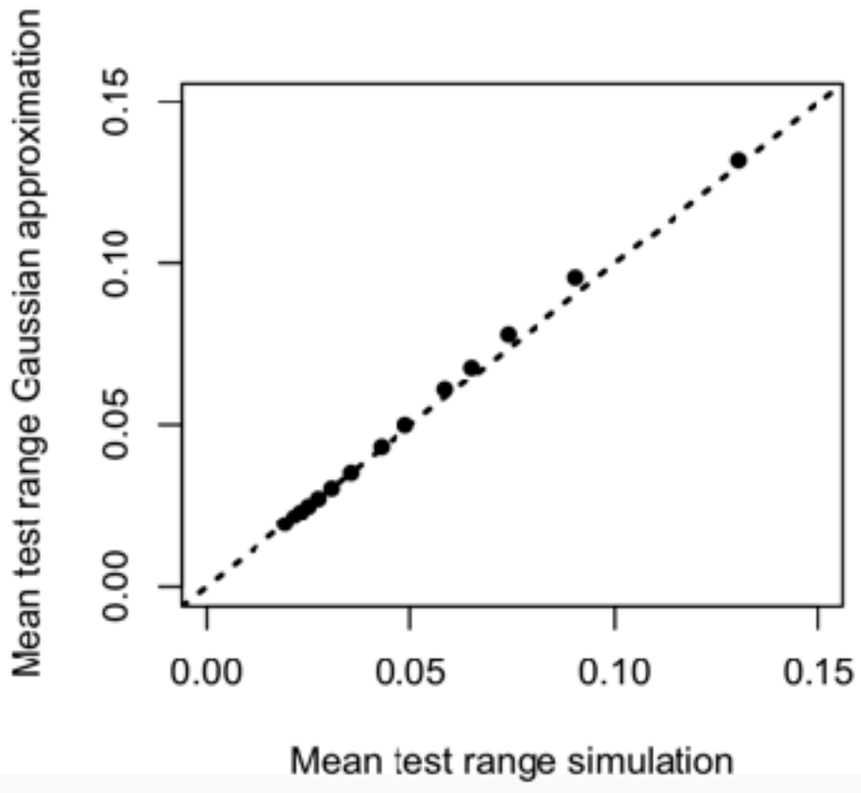


Supplementary Figure 12: $f_t = 0.03, p_{FN} = 0.4, p_{FP} = 0.025$

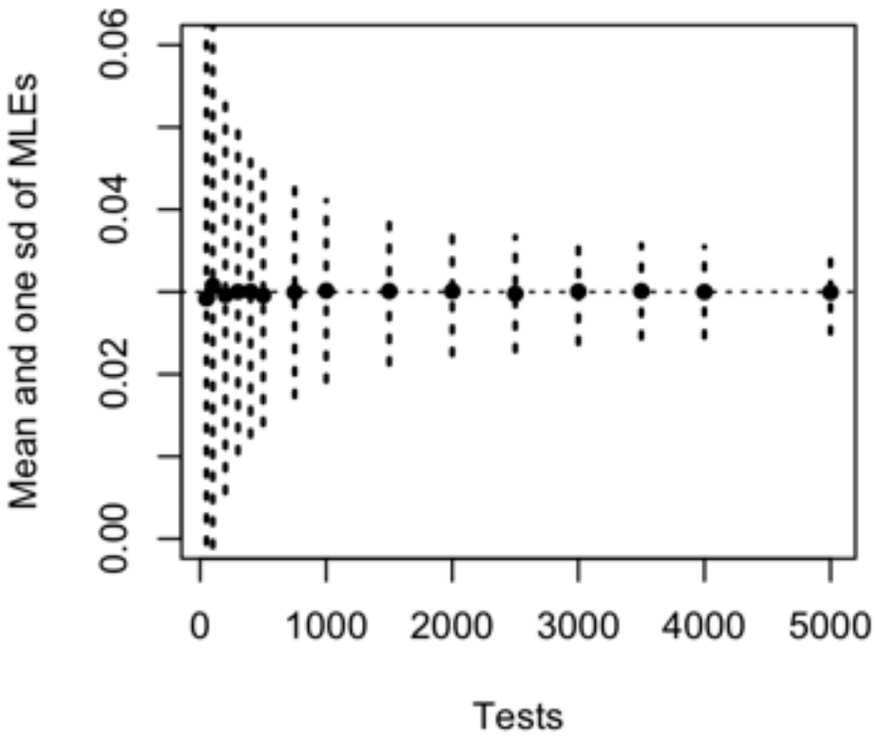


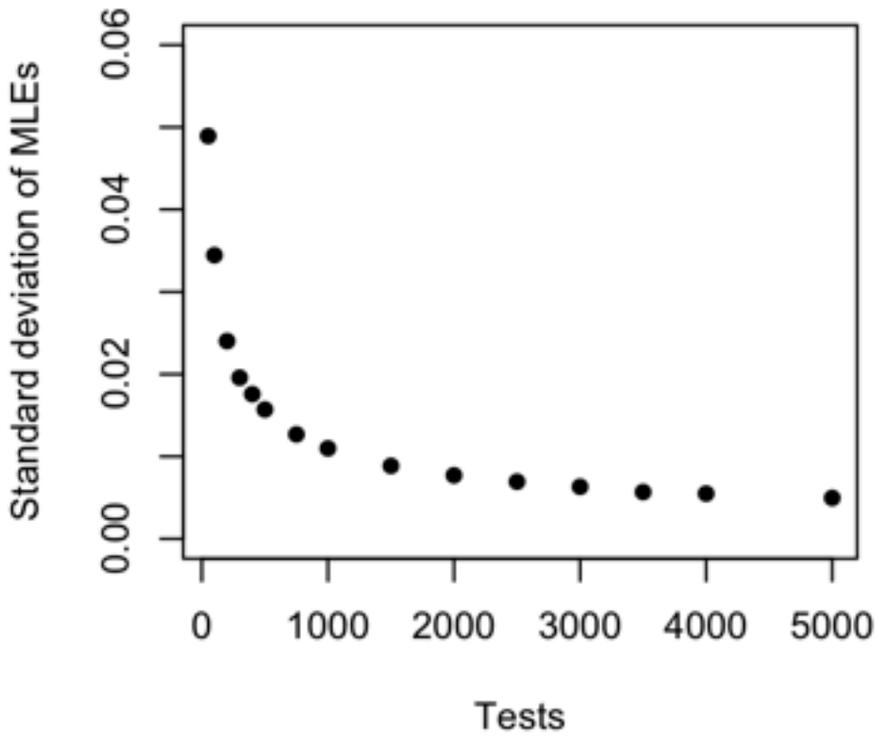


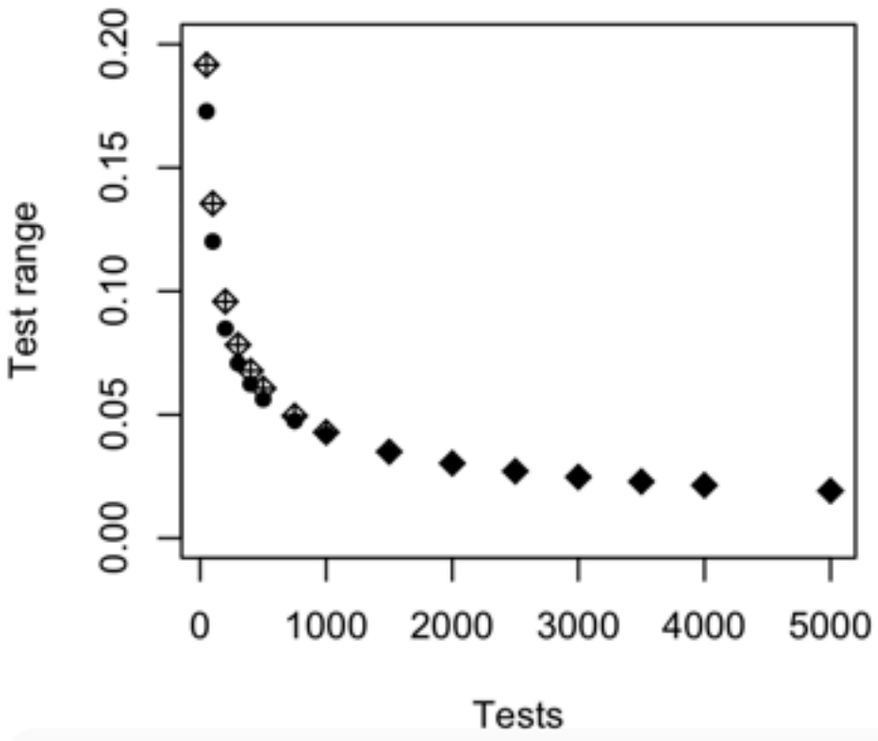


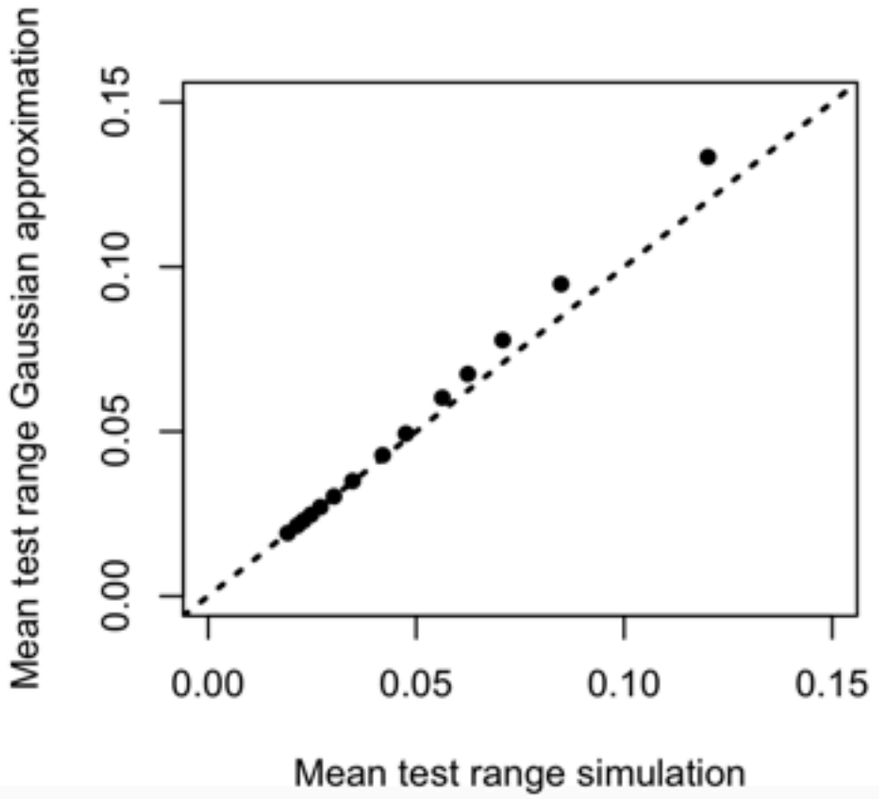


Supplementary Figure 13: $f_t = 0.03, p_{FN} = 0.2, p_{FP} = 0.05$

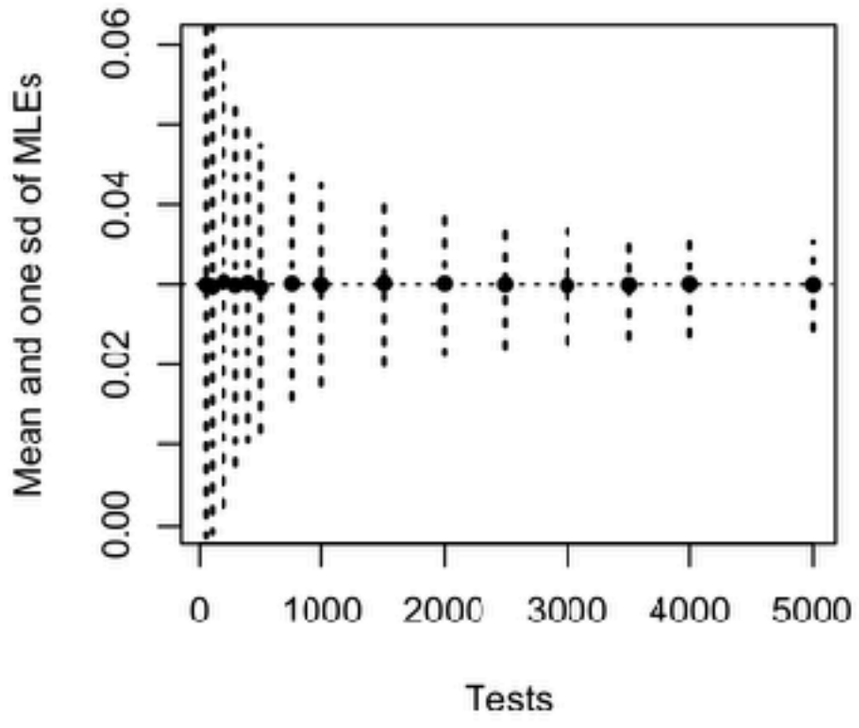


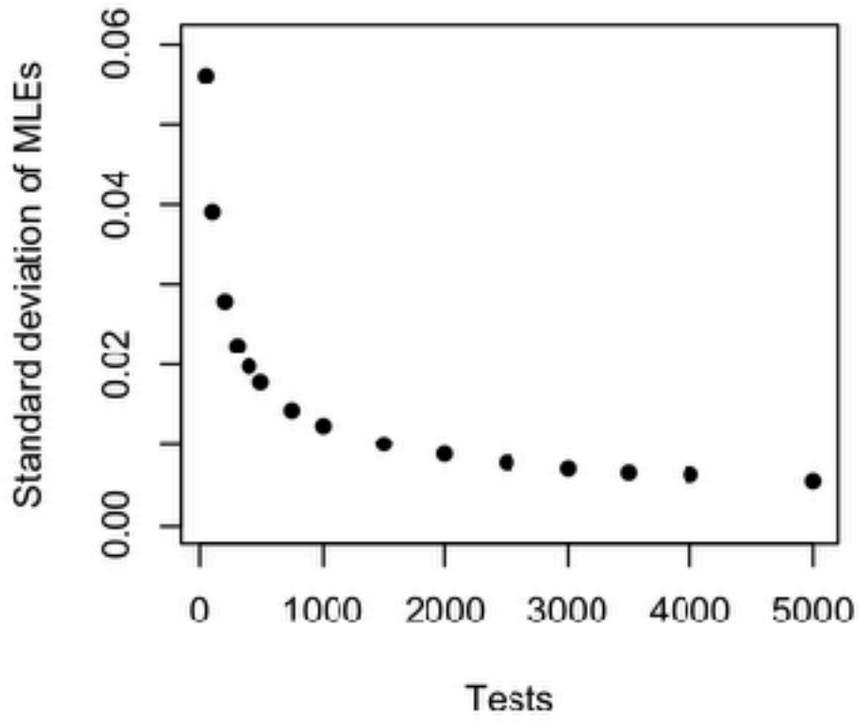


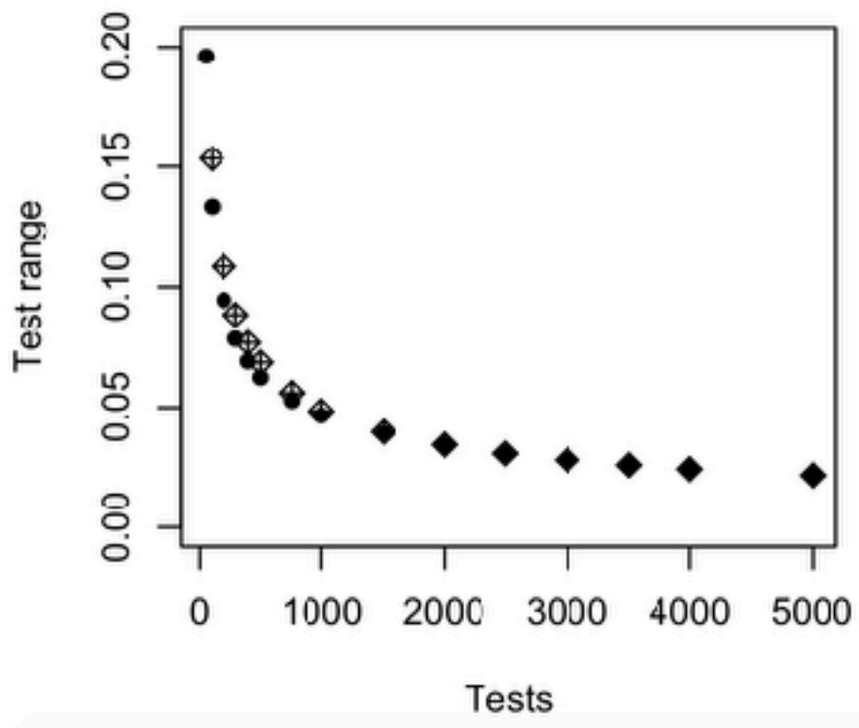


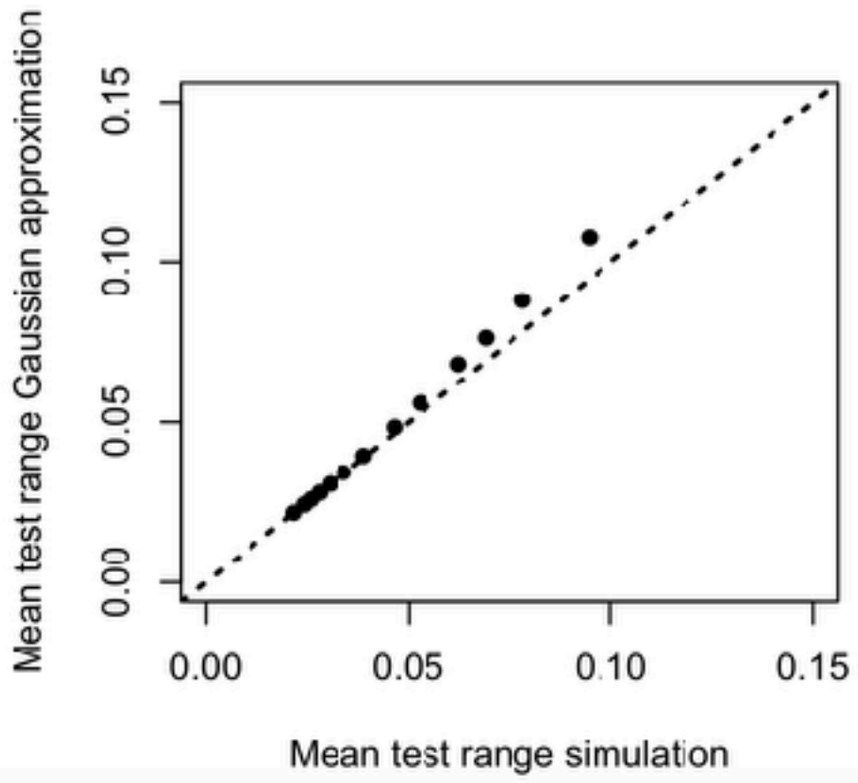


Supplementary Figure 14: $f_t = 0.03, p_{FN} = 0.3, p_{FP} = 0.05$

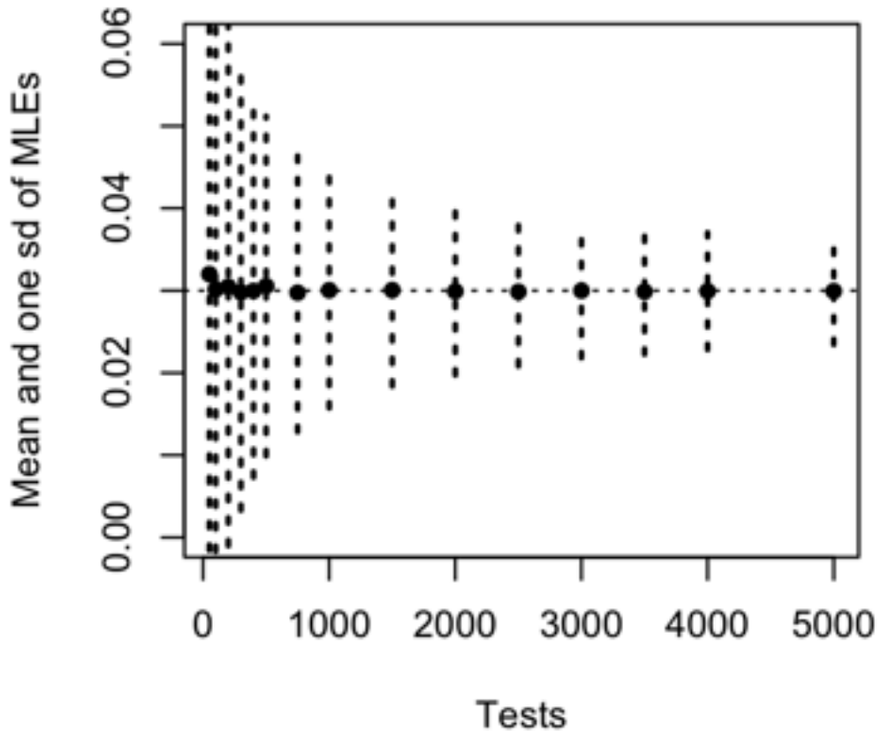


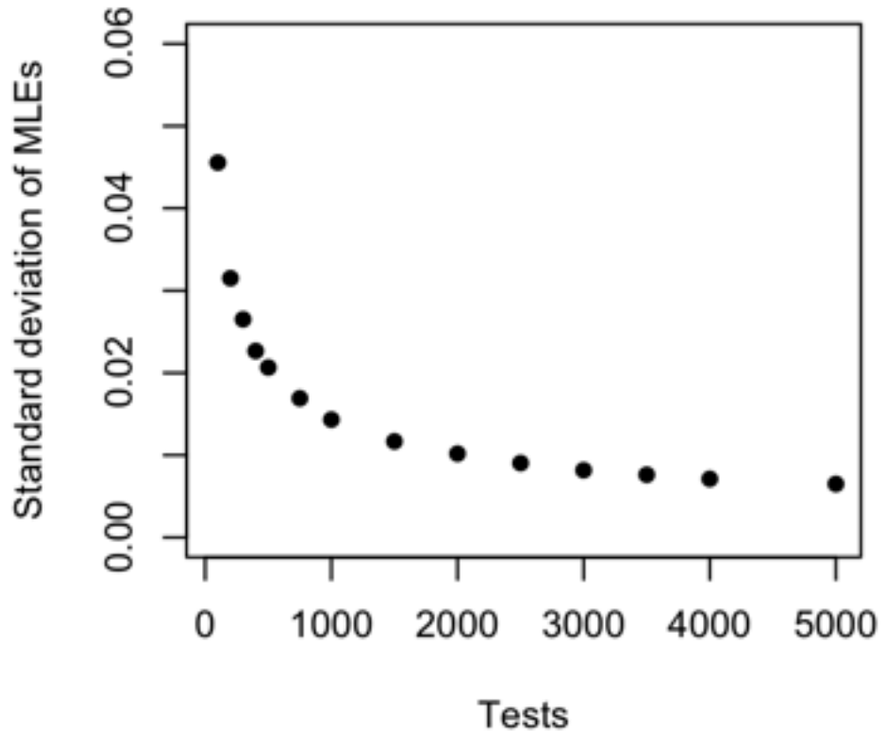


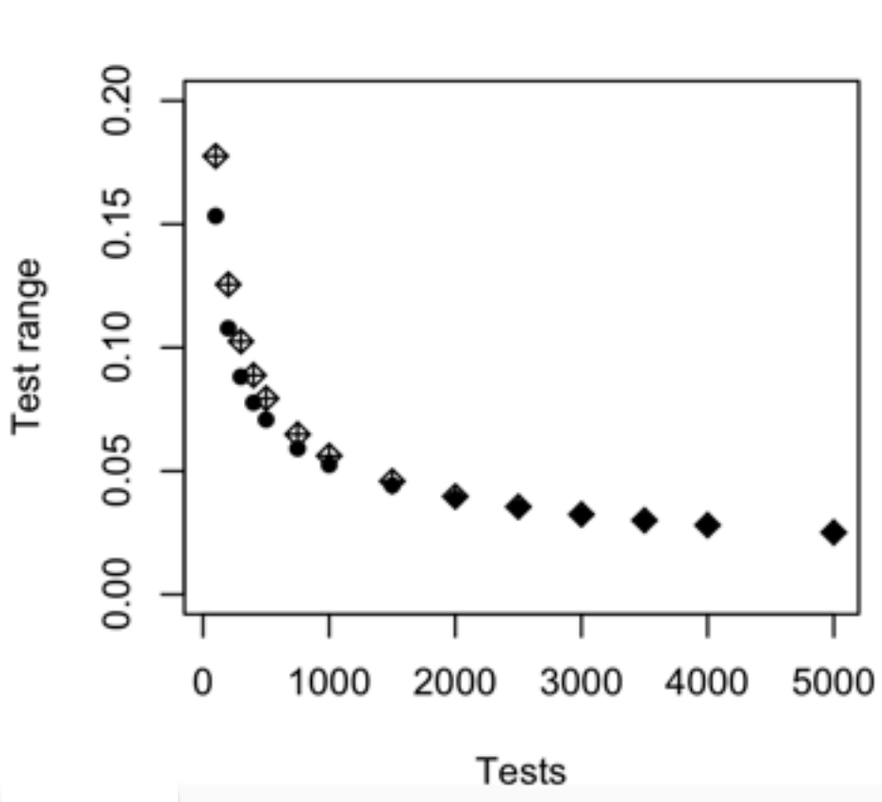


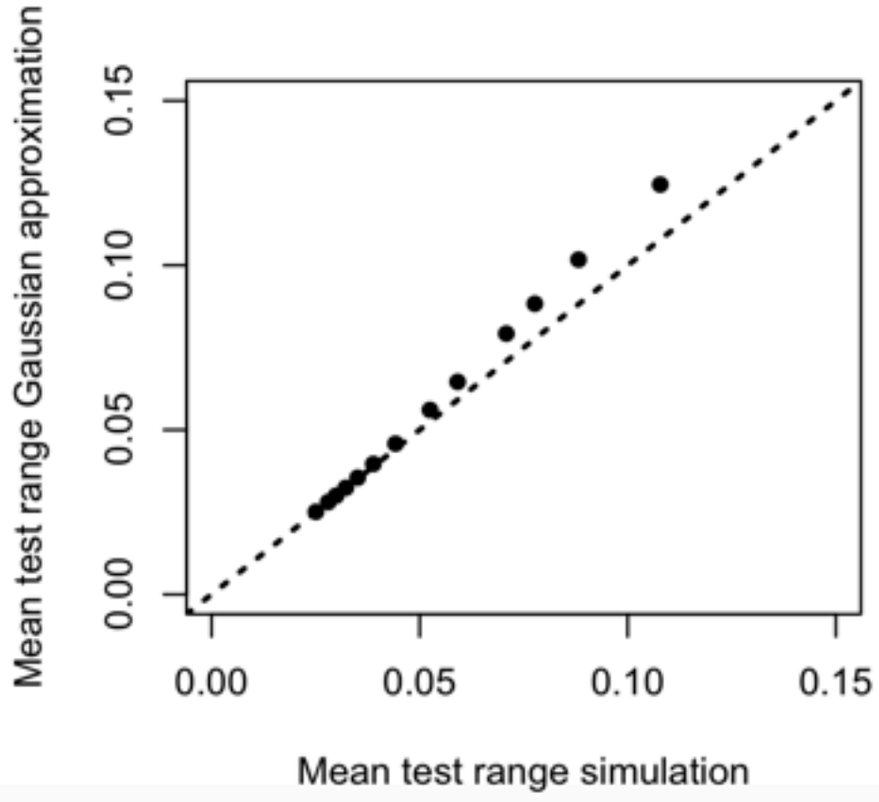


Supplementary Figure 15: $f_t = 0.03, p_{FN} = 0.4, p_{FP} = 0.05$

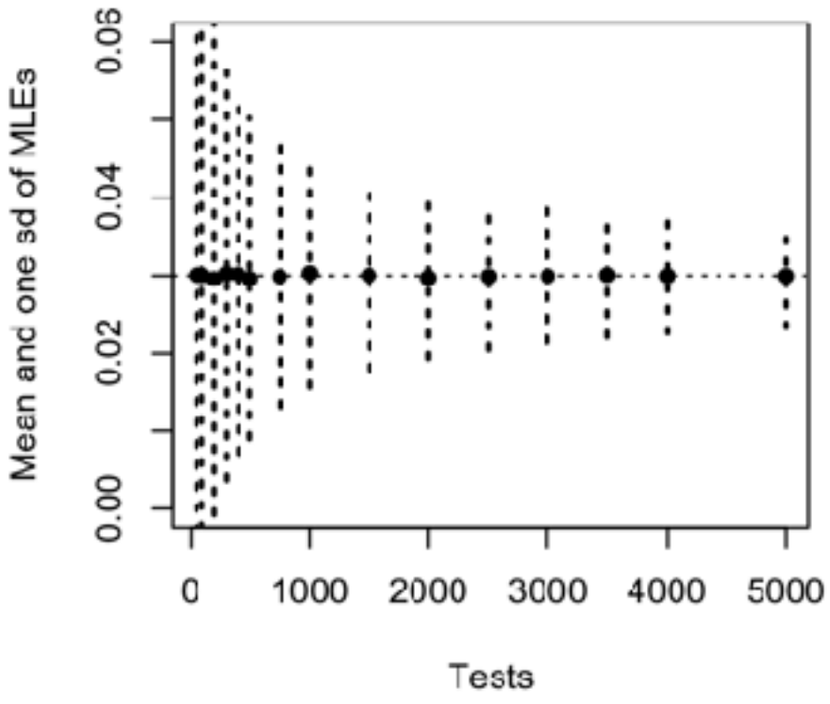


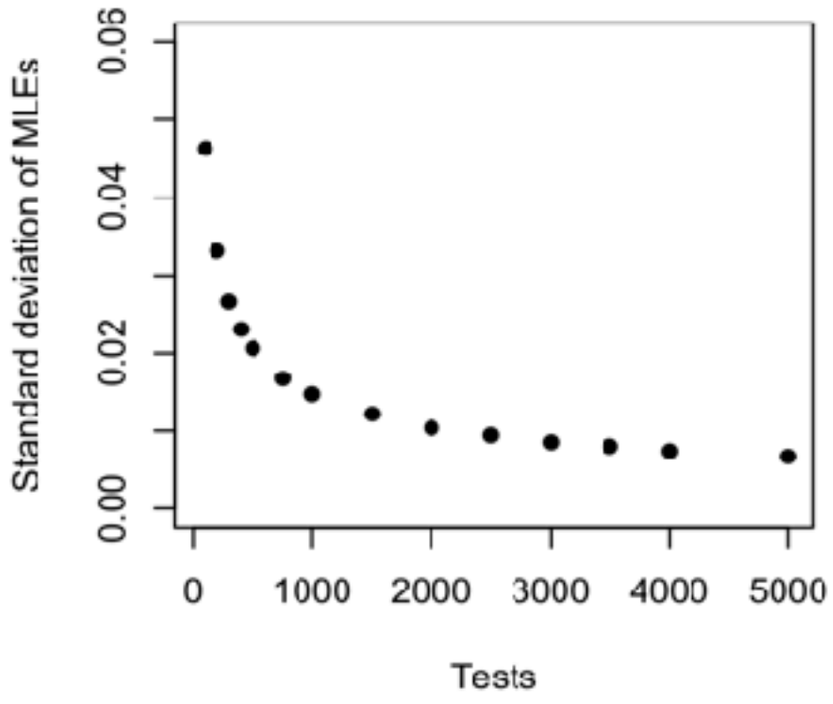


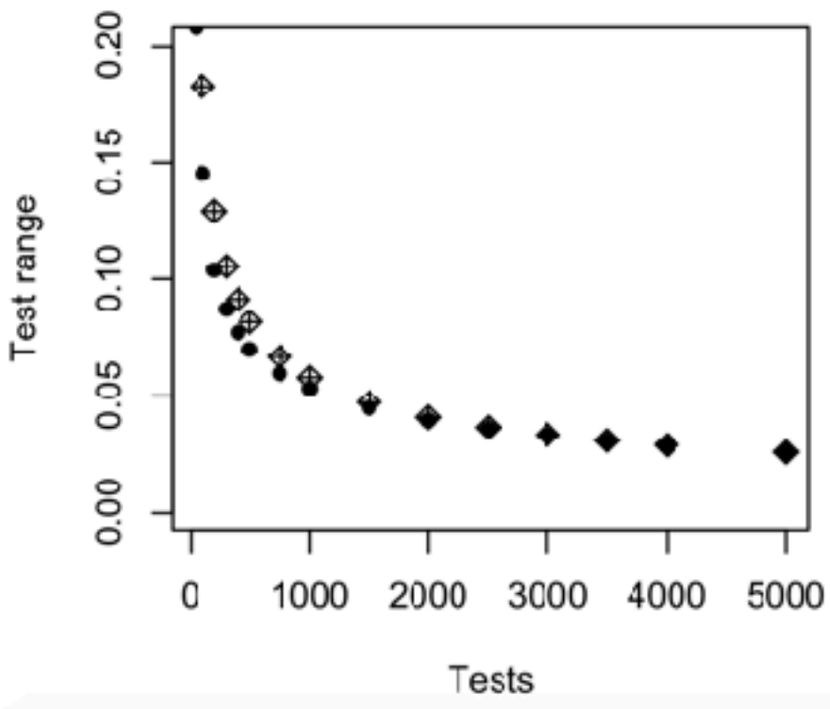


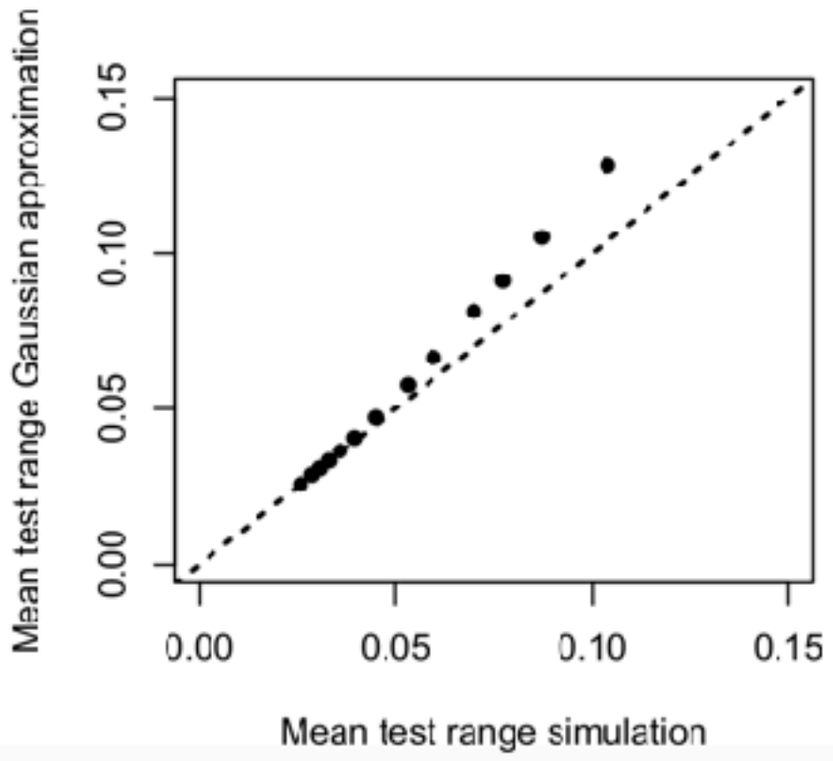


Supplementary Figure 16: $f_t = 0.03, p_{FN} = 0.2, p_{FP} = 0.1$

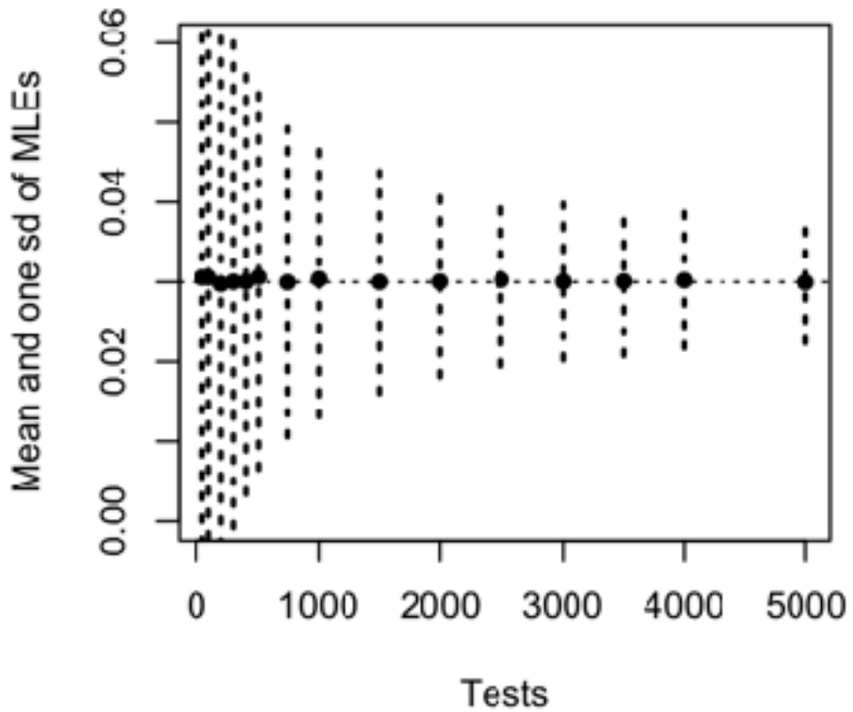


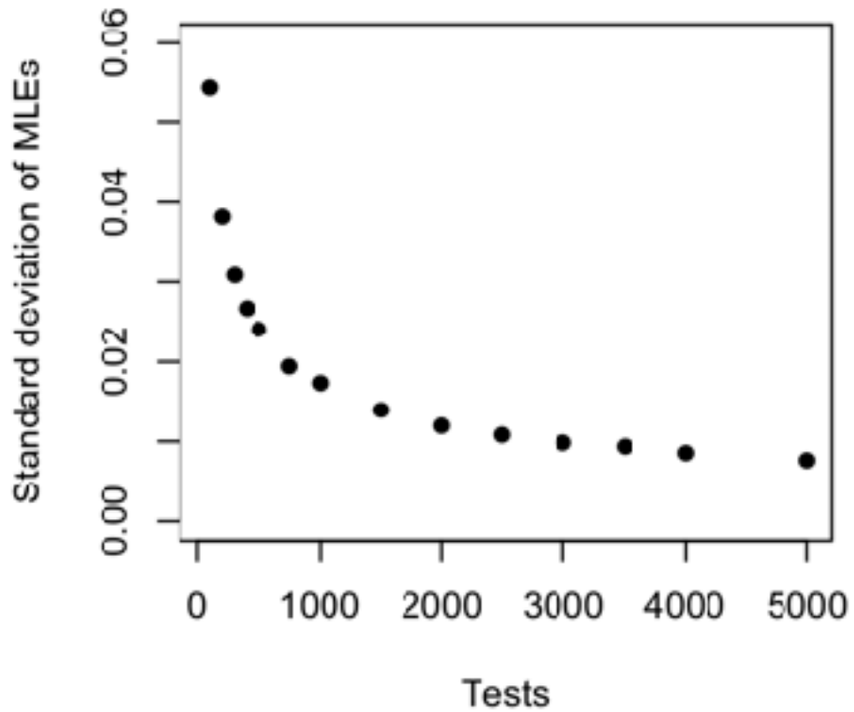


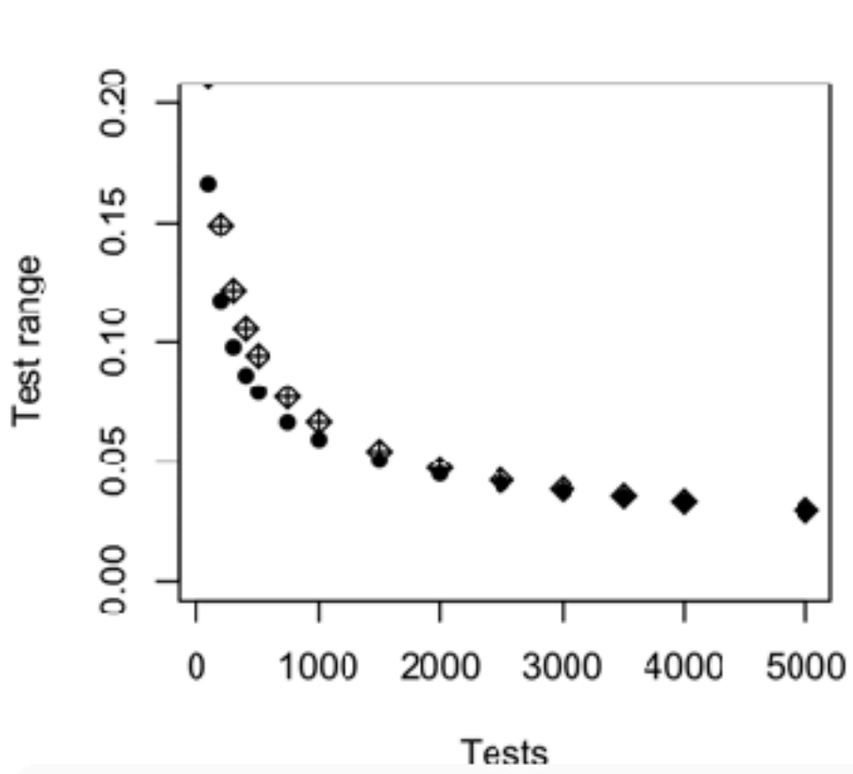


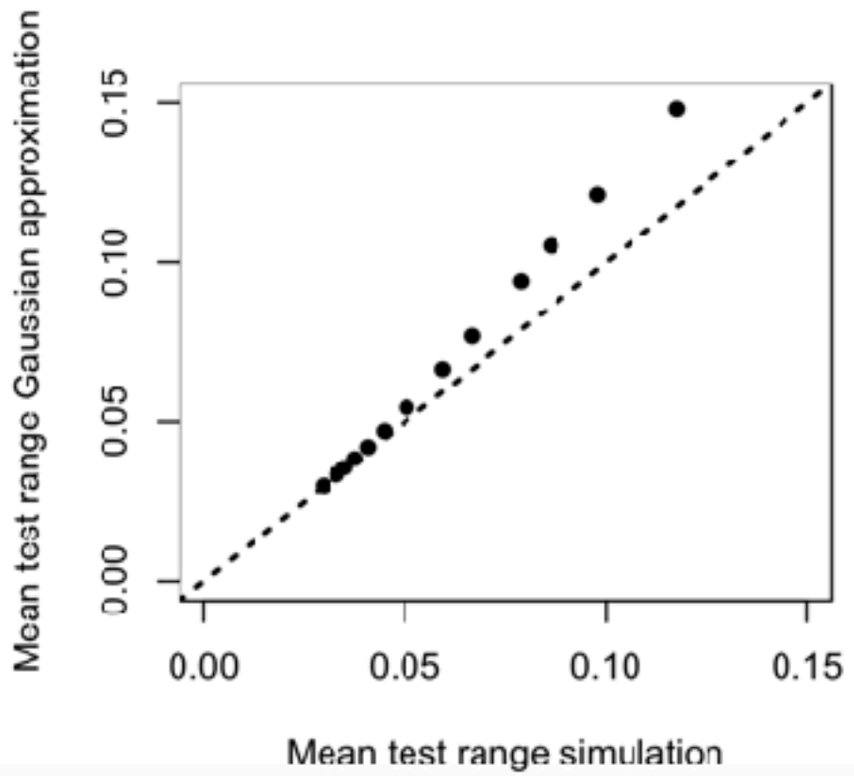


Supplementary Figure 17: $f_t = 0.03, p_{FN} = 0.3, p_{FP} = 0.1$

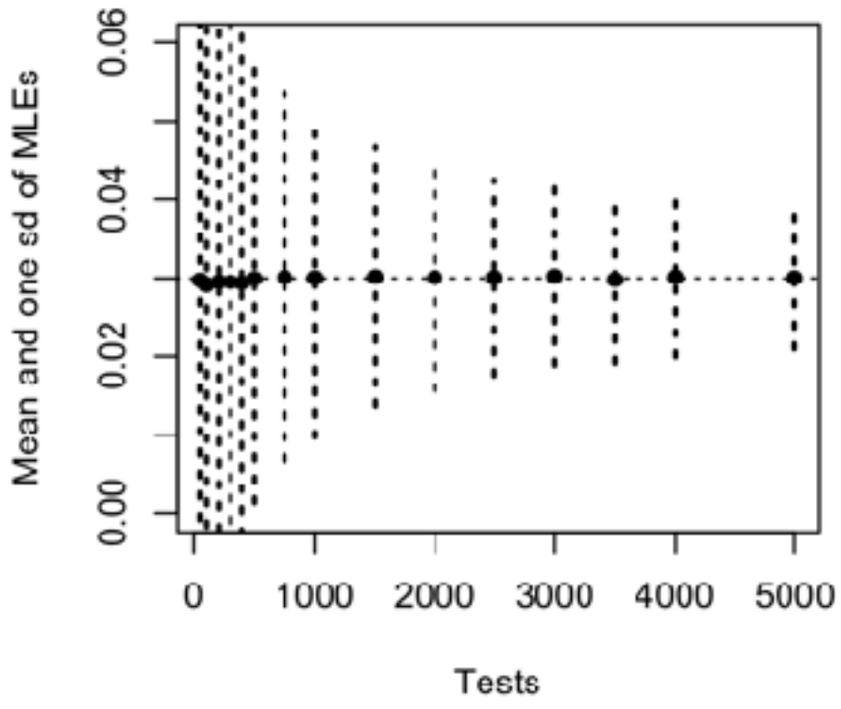


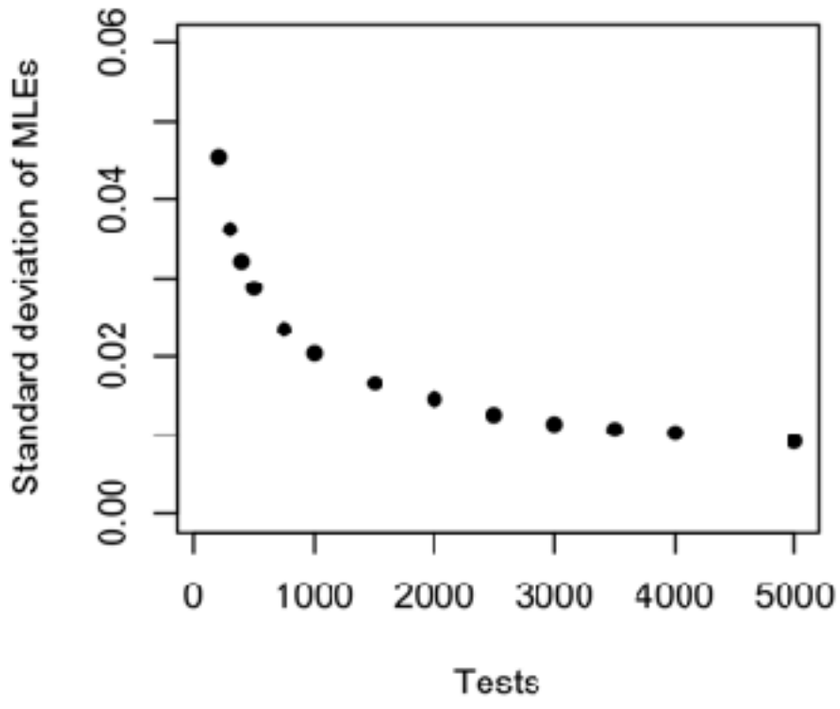


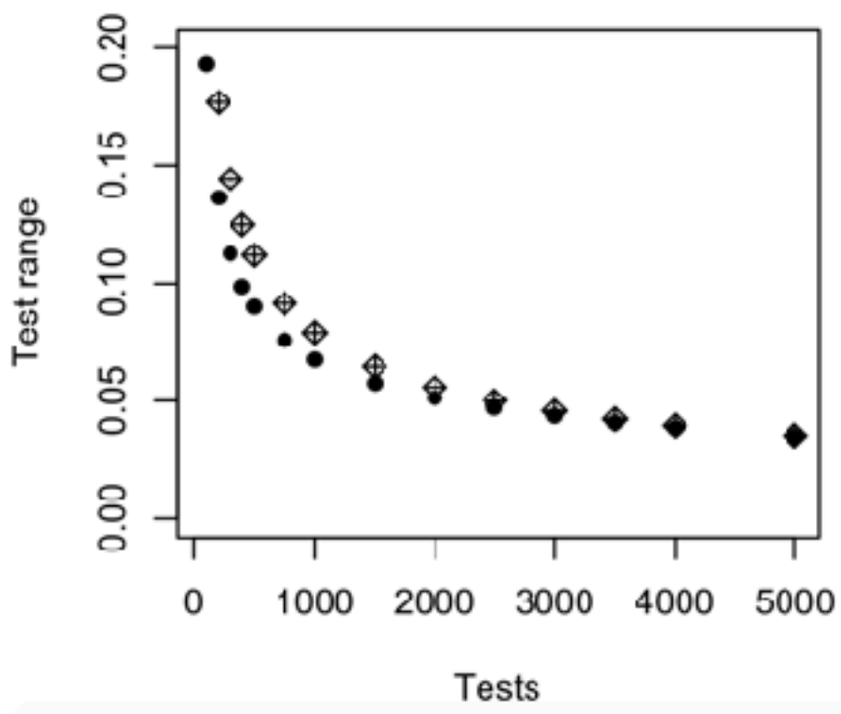


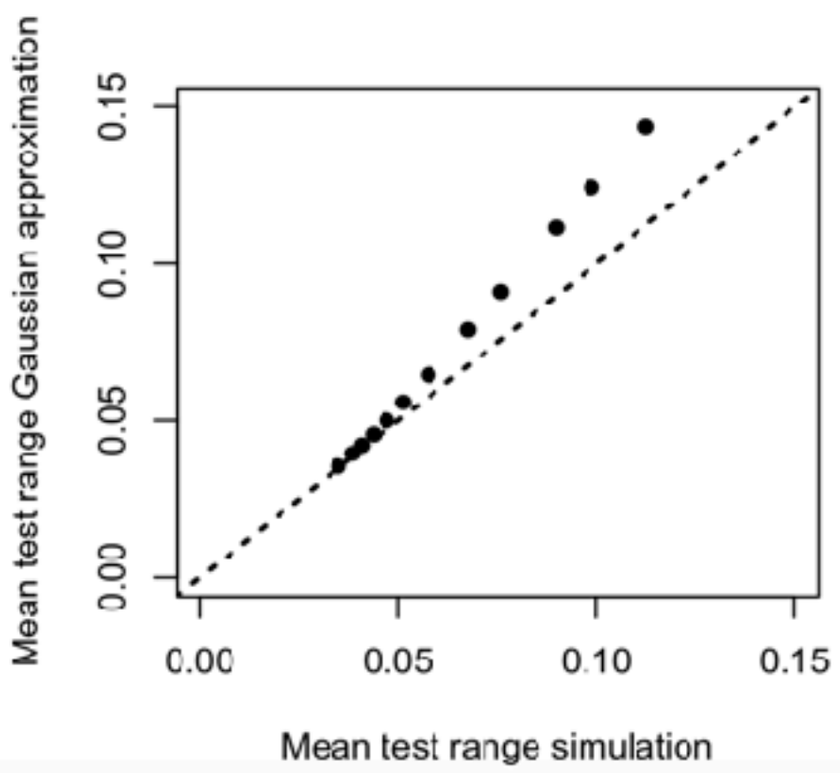


Supplementary Figure 18: $f_t = 0.03, p_{FN_t} = 0.4, p_{FP_t} = 0.1$

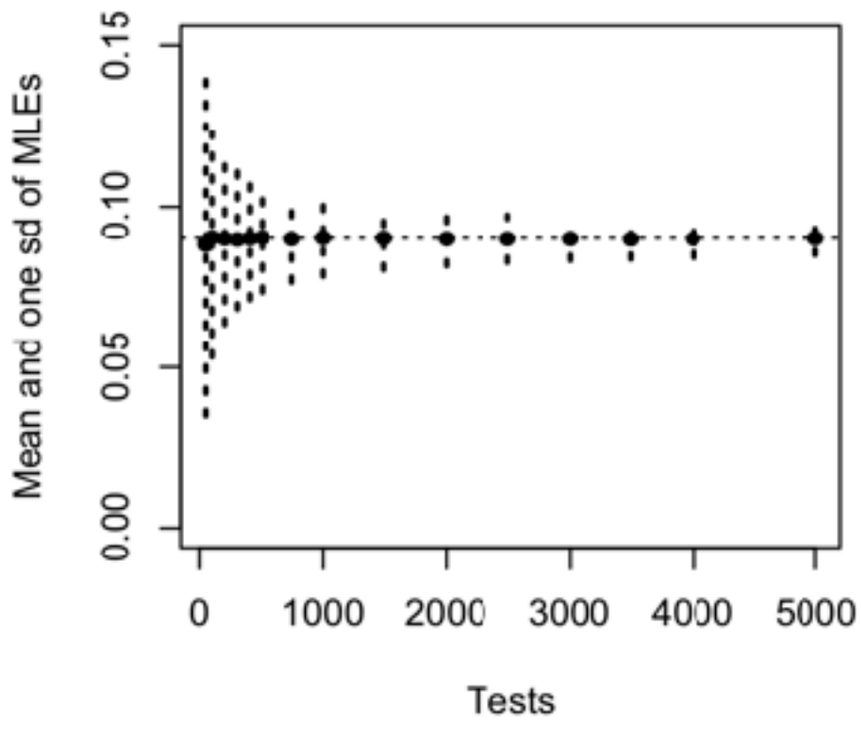


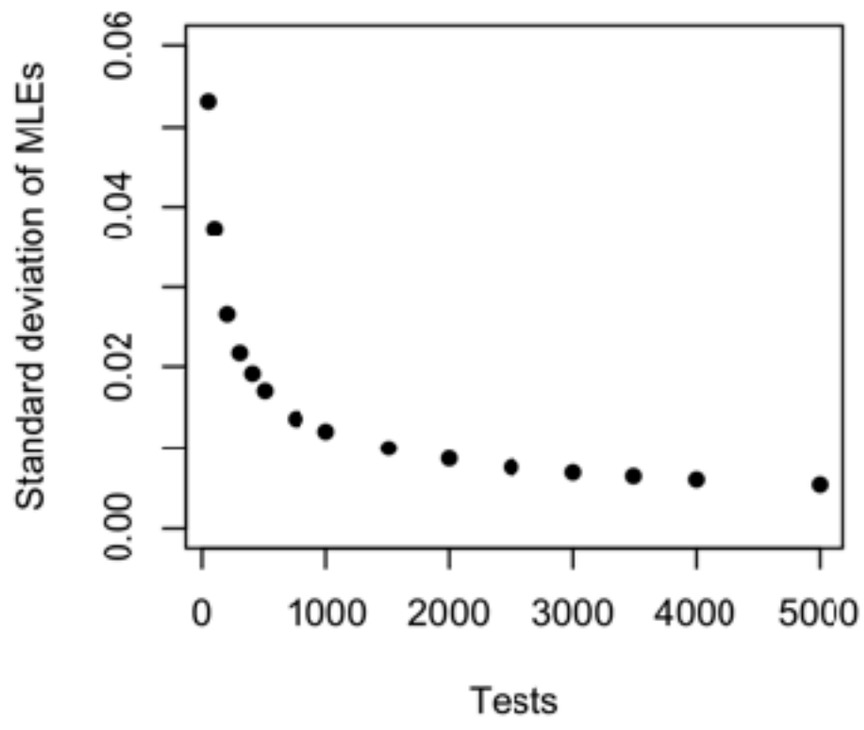


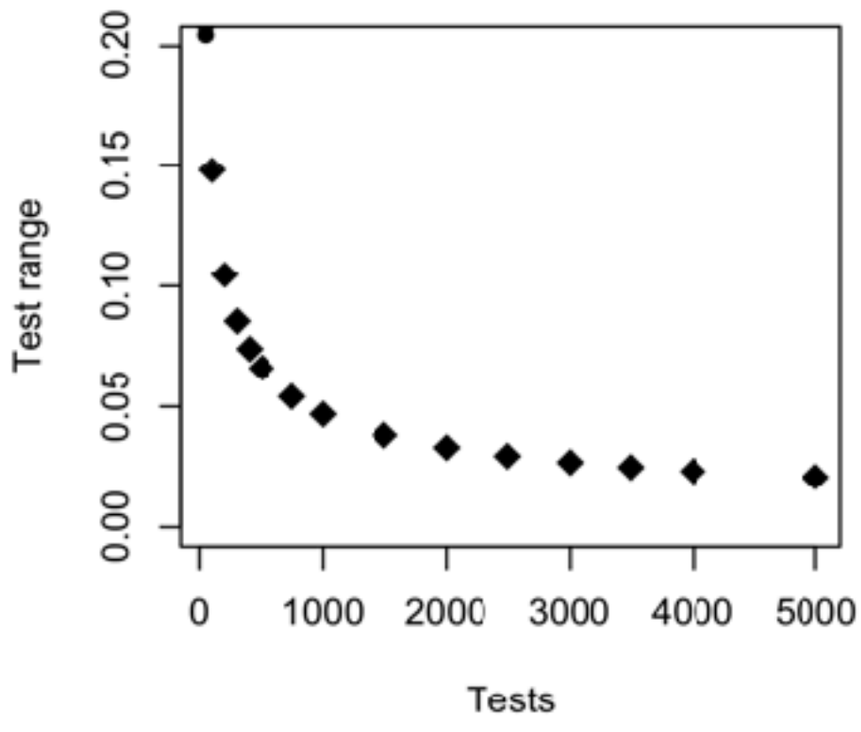


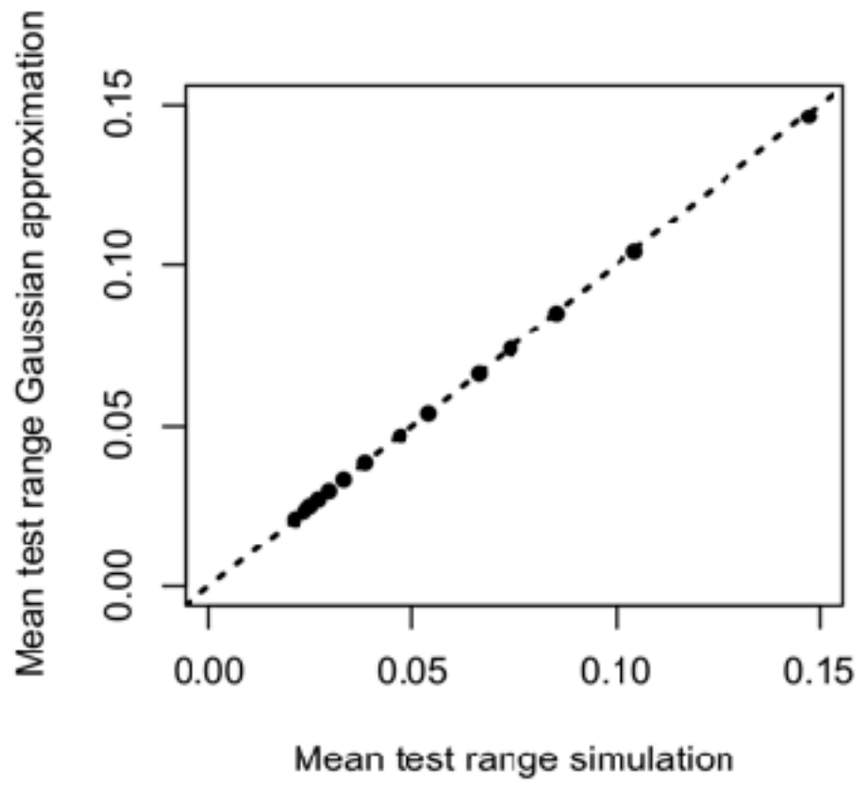


Supplementary Figure 19: $f_t = 0.09, p_{FN_t} = 0.2, p_{FP_t} = 0.025$

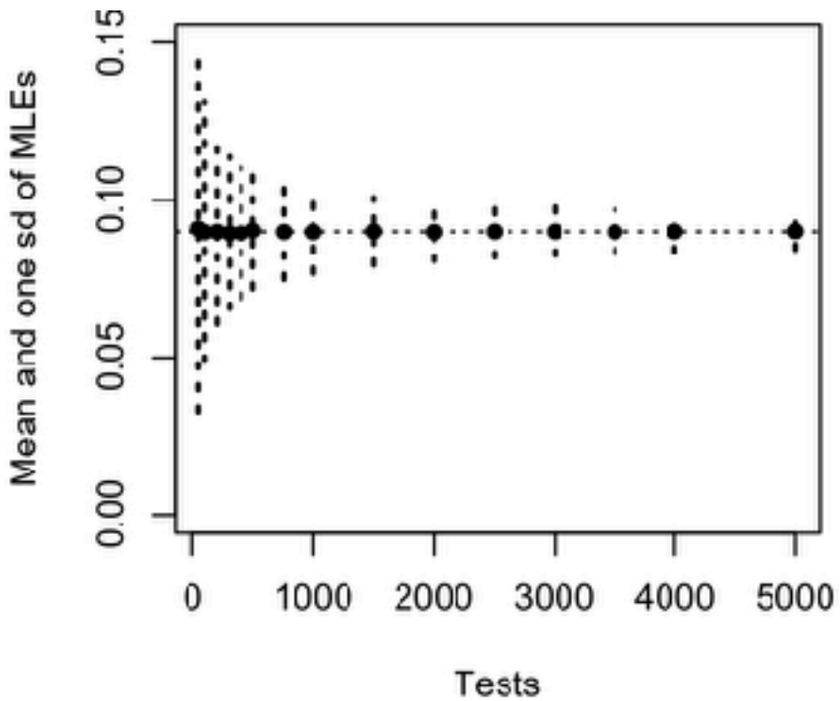


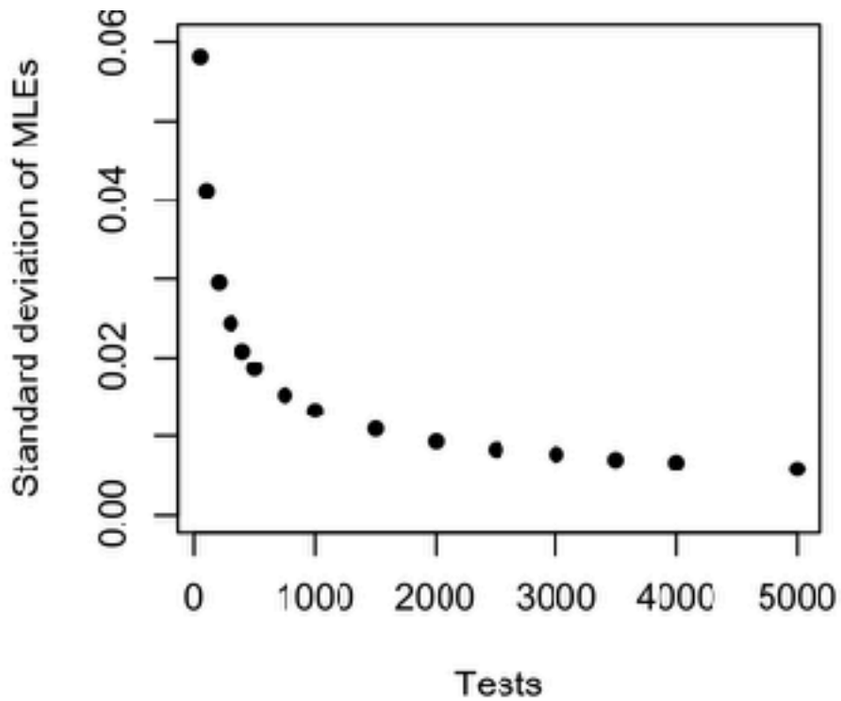


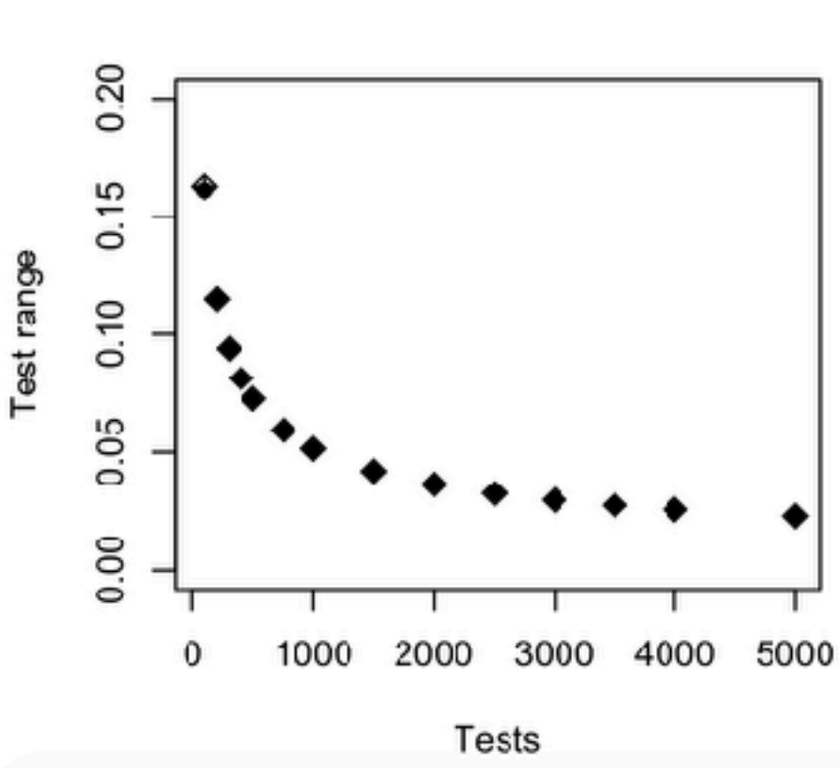


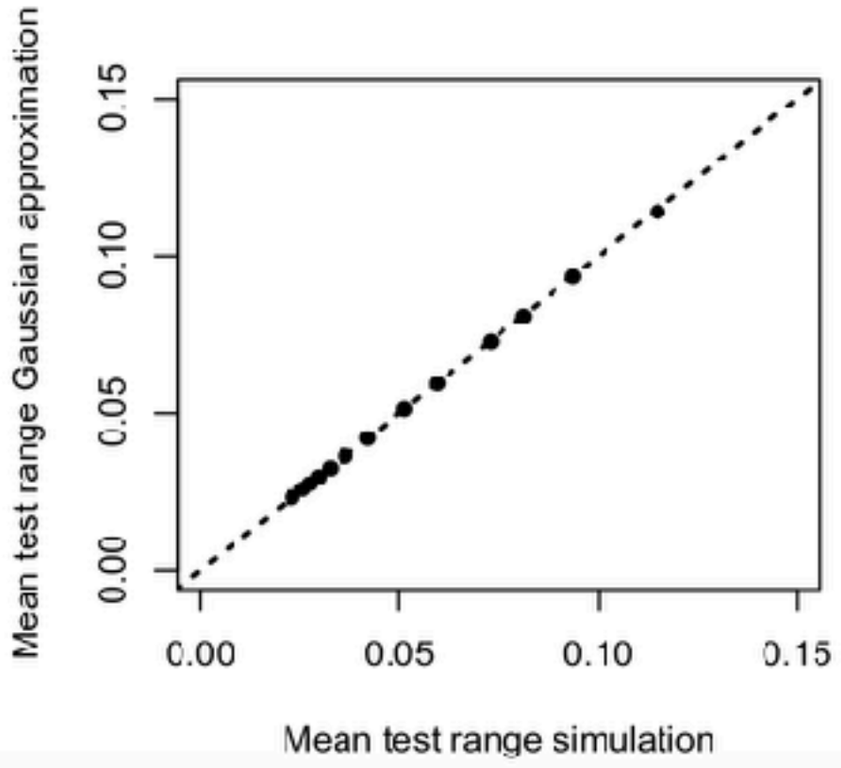


Supplementary Figure 20: $f_t = 0.09, p_{FN_t} = 0.3, p_{FP_t} = 0.025$

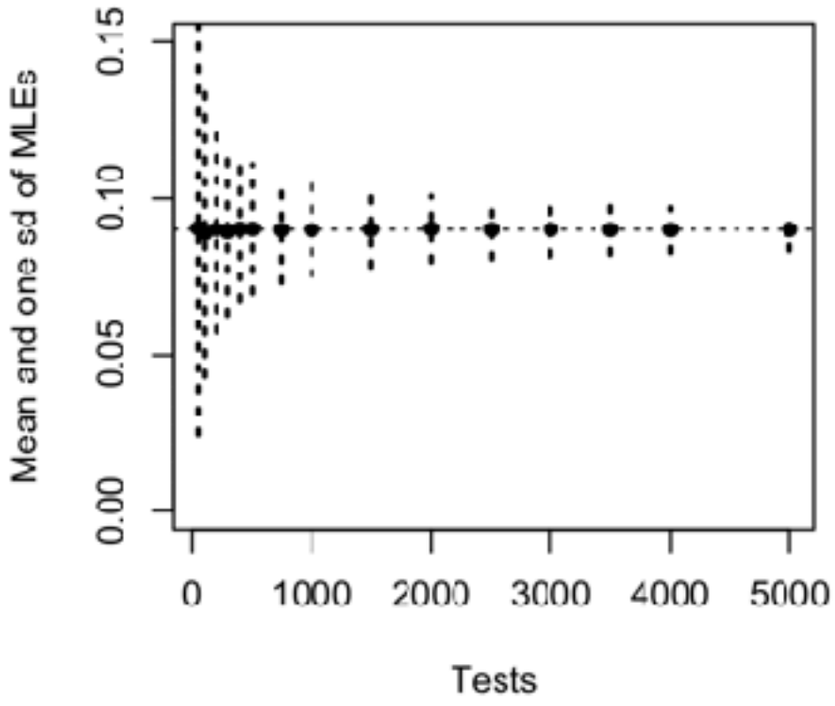


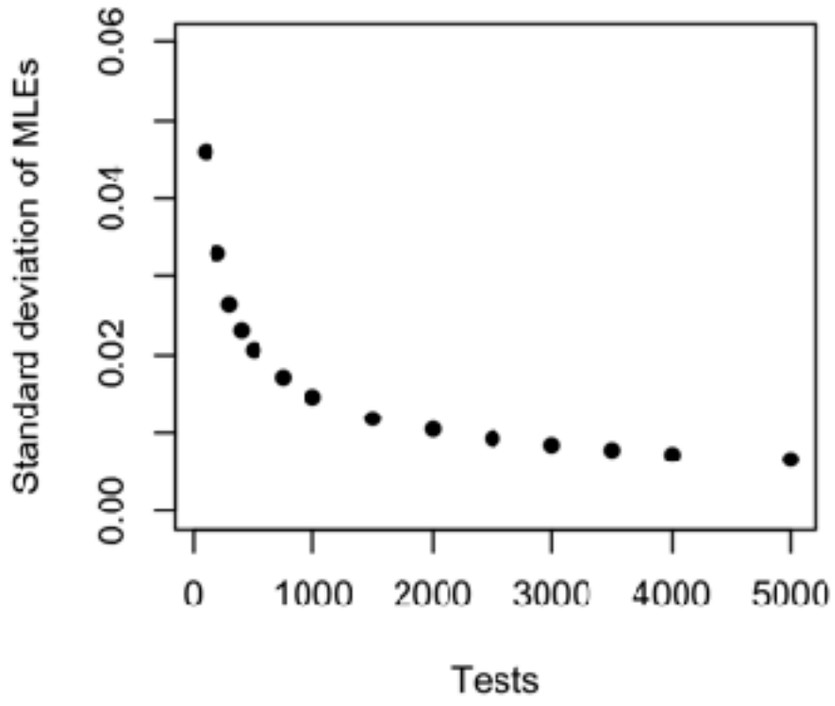


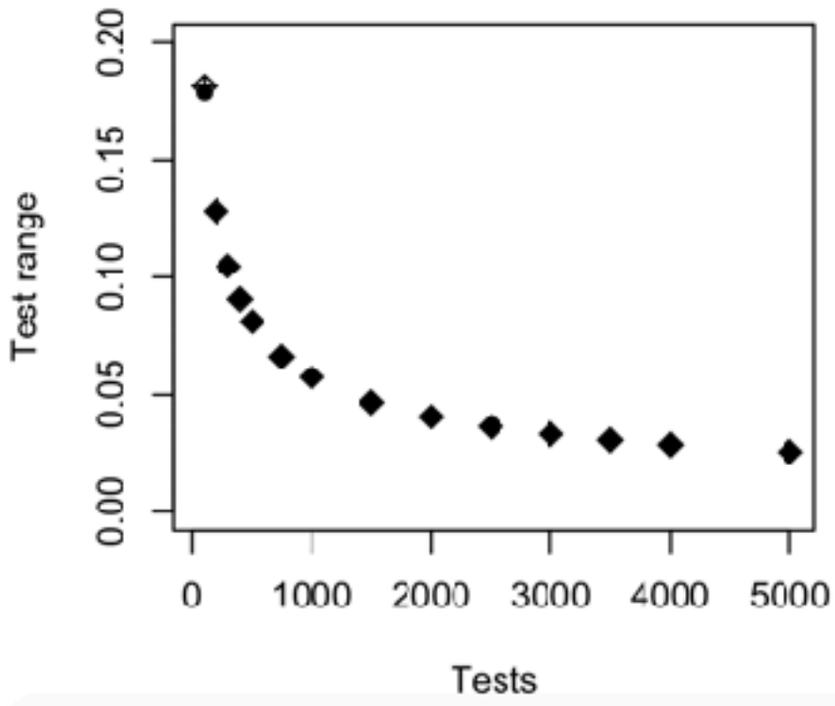


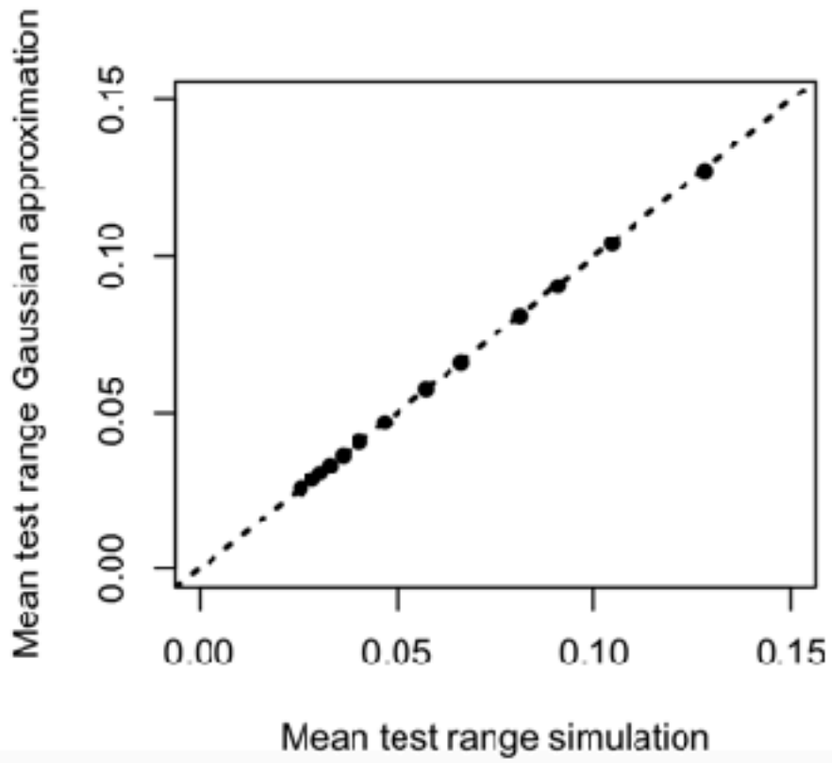


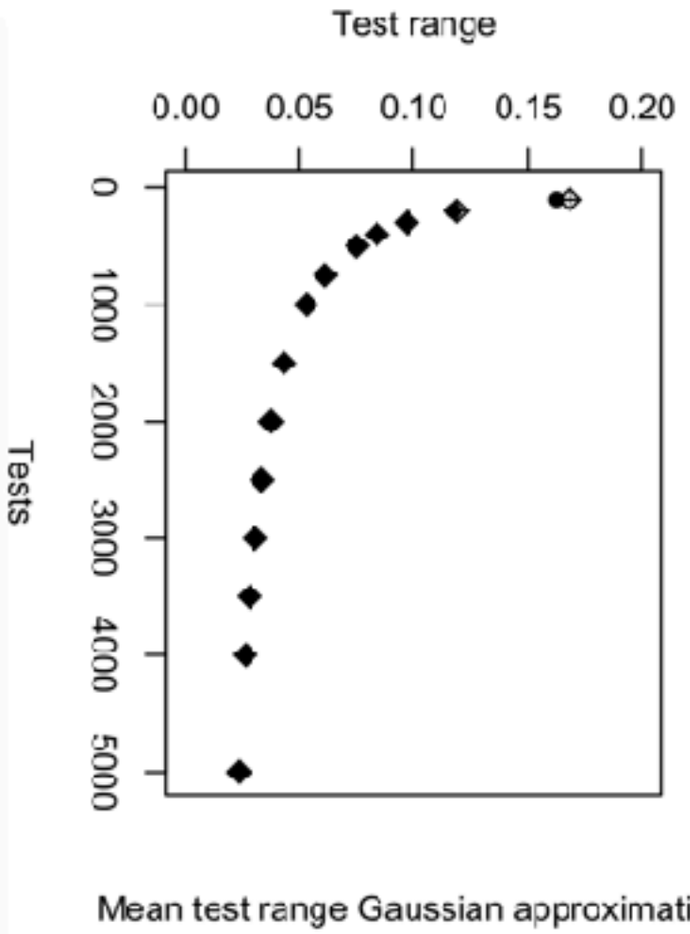
Supplementary Figure 21: $f_t = 0.09, p_{FN_t} = 0.4, p_{FP_t} = 0.025$



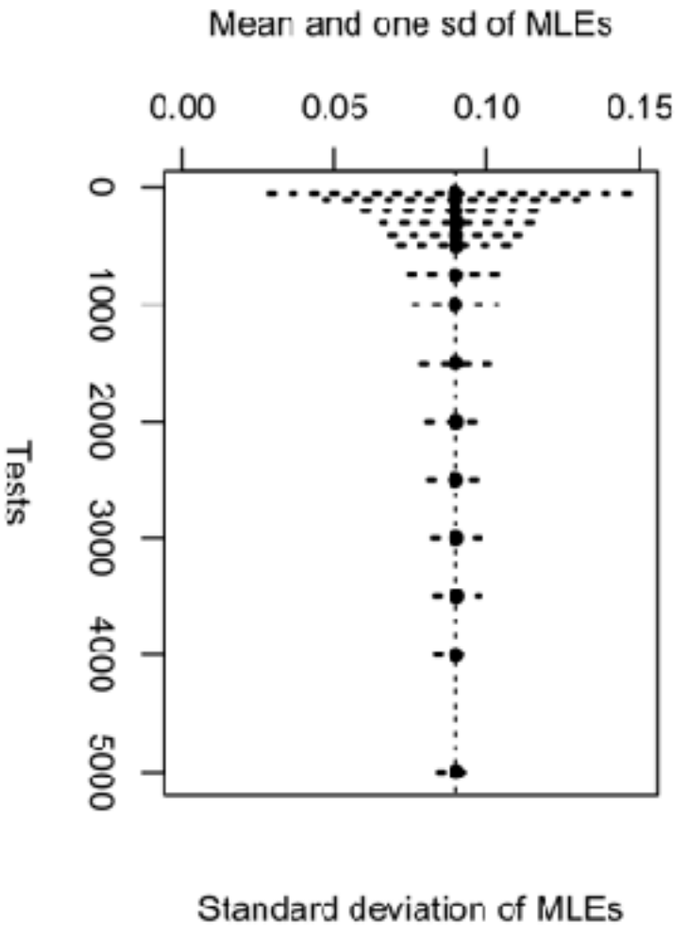




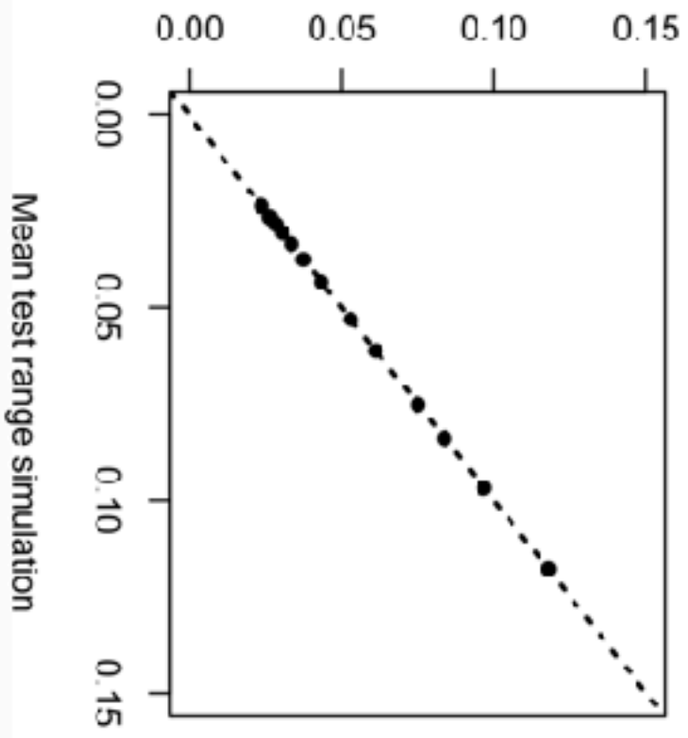


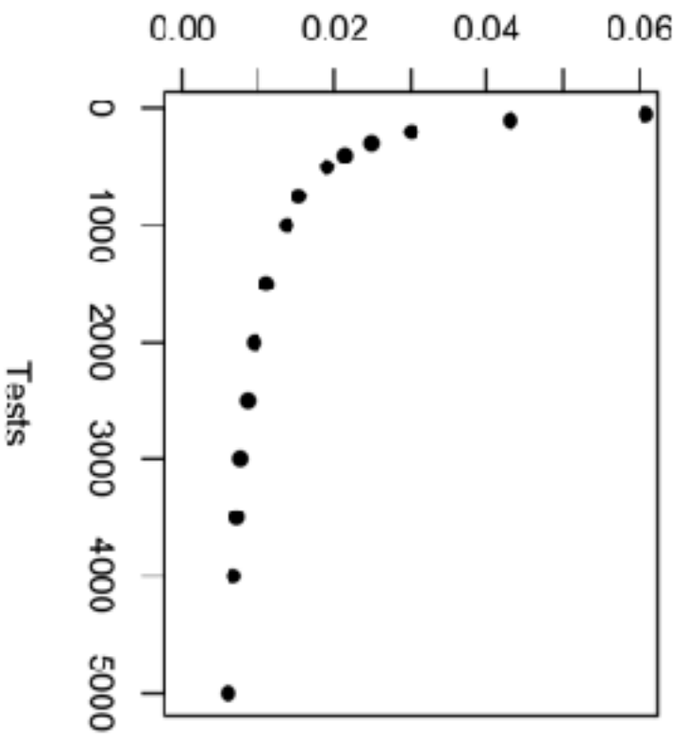


Mean test range Gaussian approximation

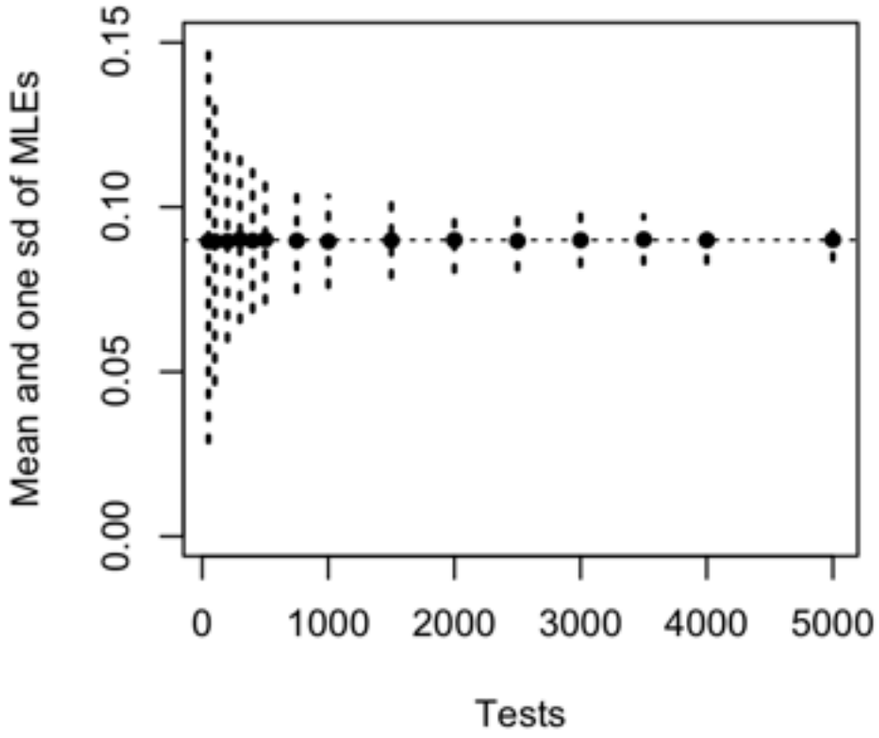


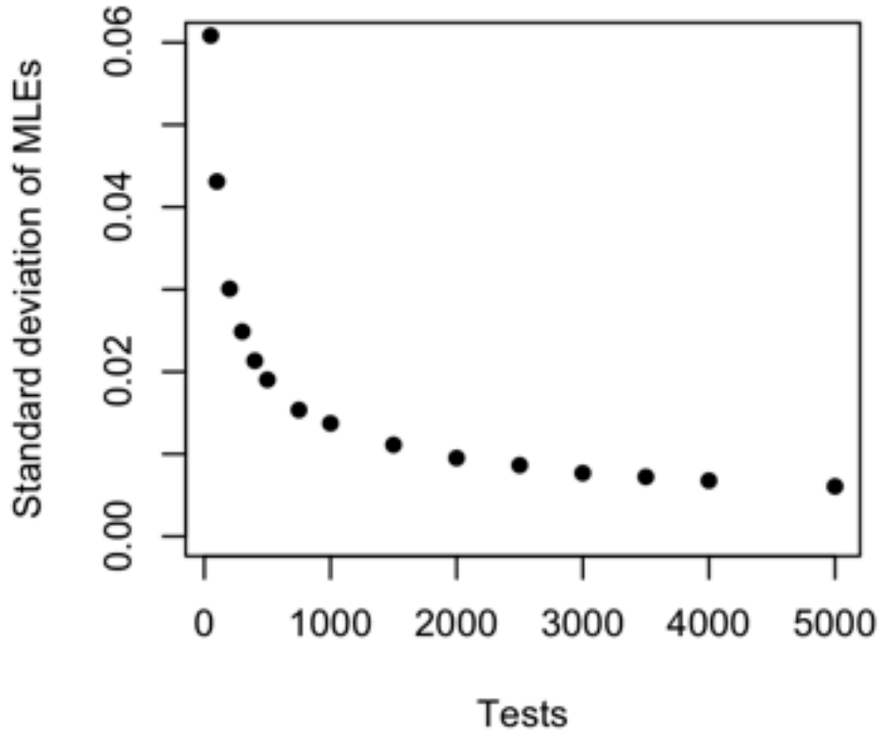
Standard deviation of MLEs

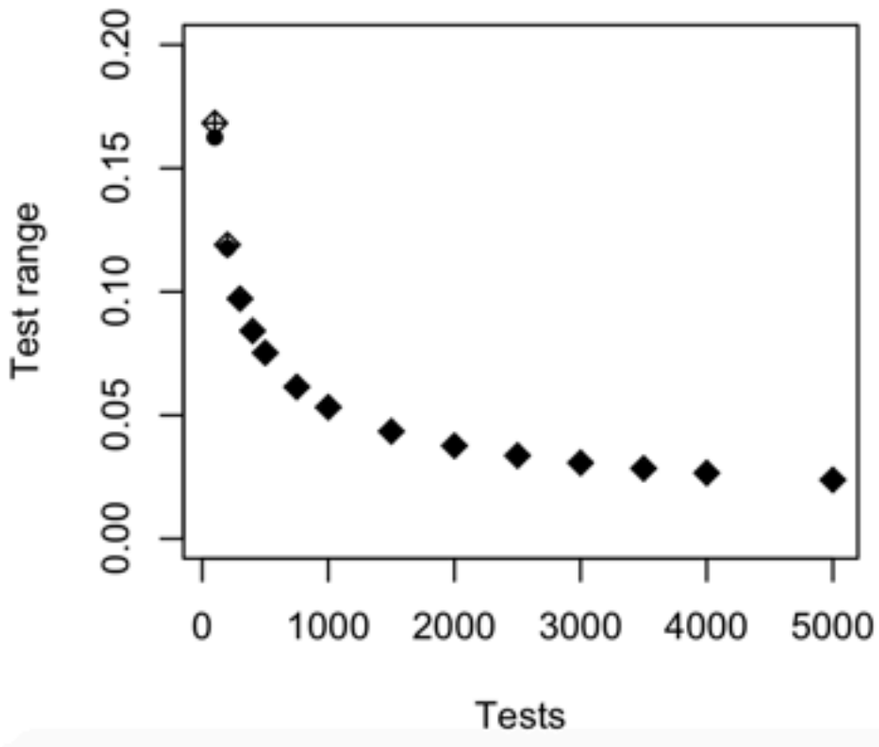


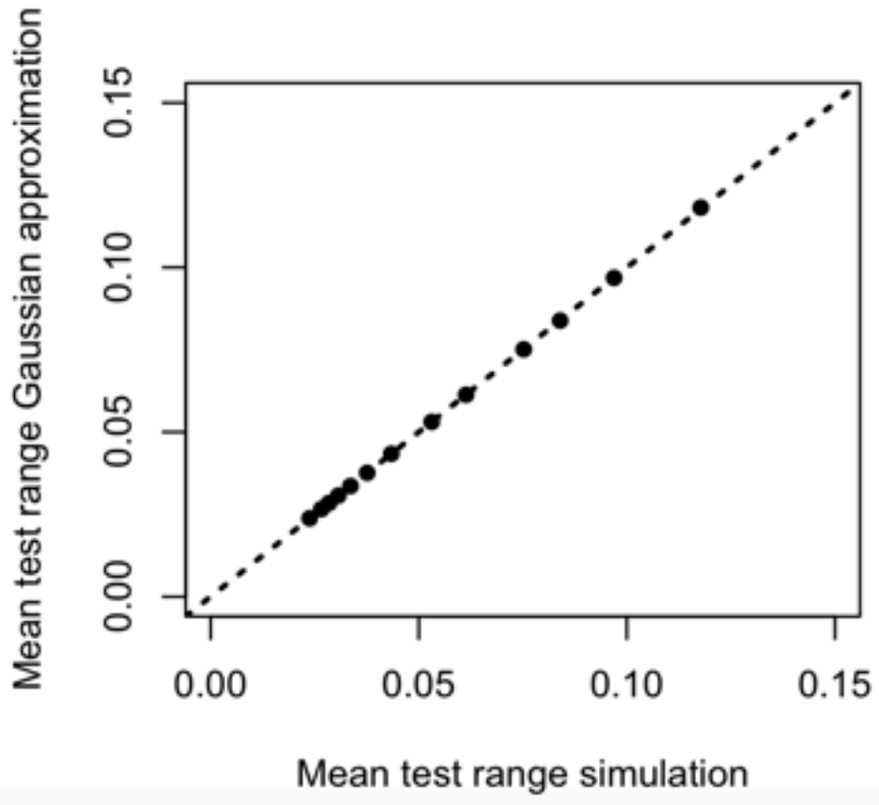


Supplementary Figure 22: $f_t = 0.09, p_{FN_t} = 0.2, p_{FP_t} = 0.05$

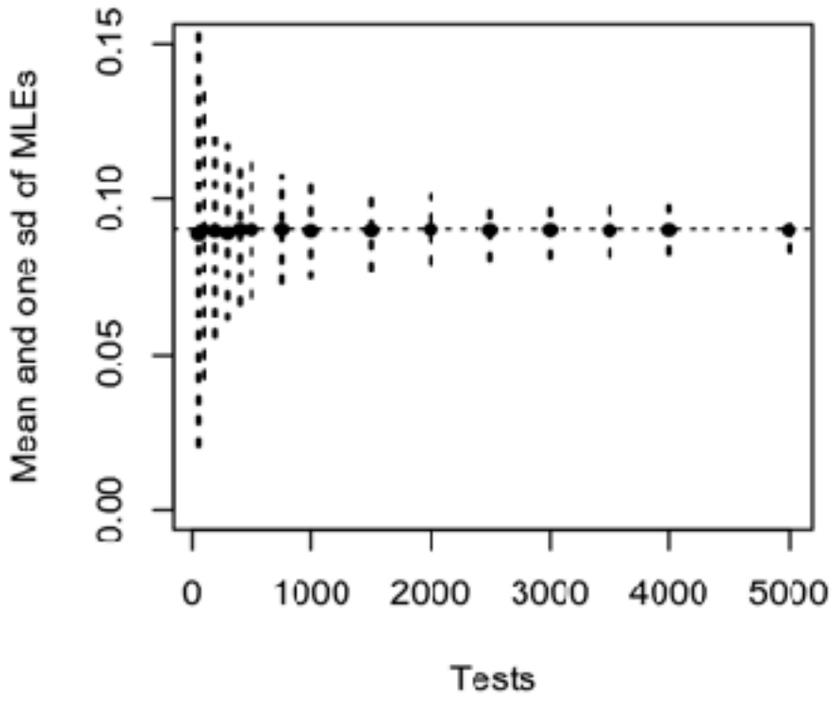


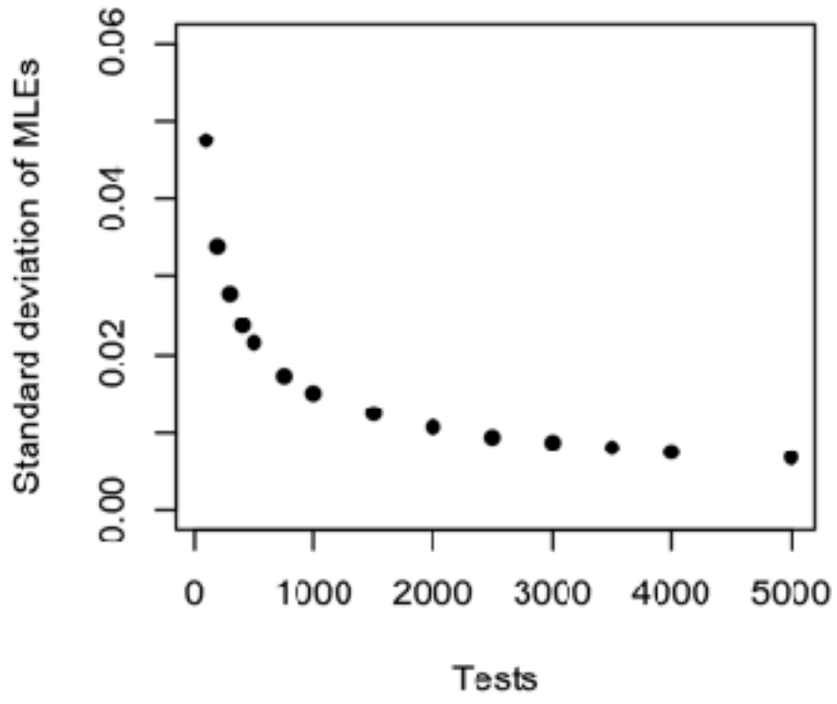


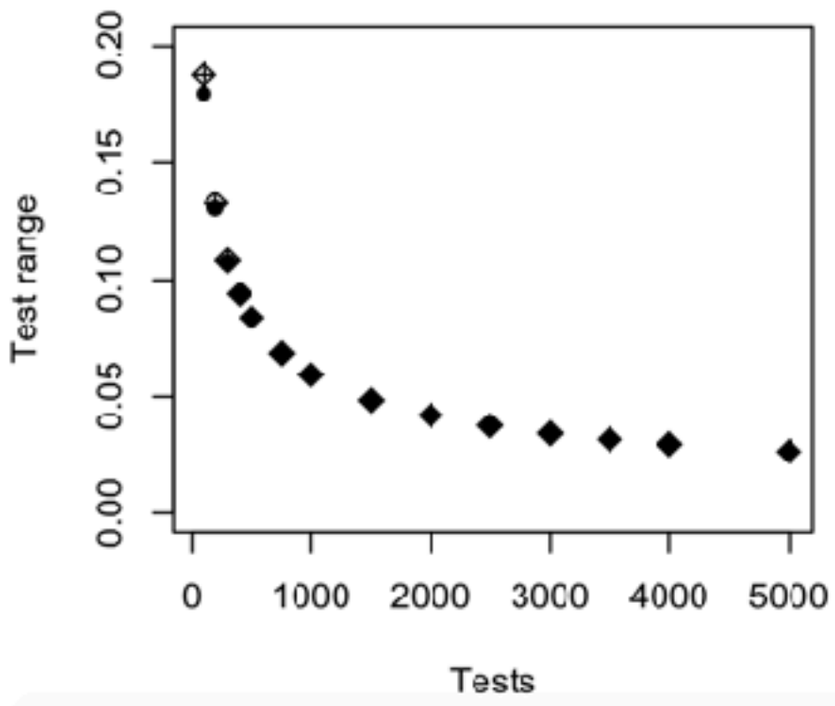


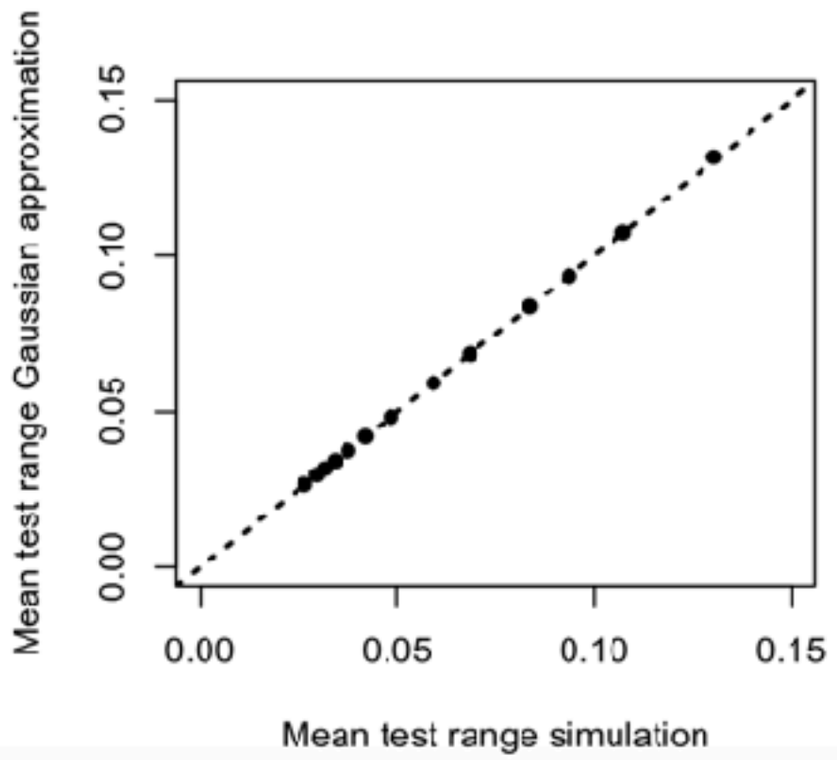


Supplementary Figure 23: $f_t = 0.09, p_{FN_t} = 0.3, p_{FP_t} = 0.05$

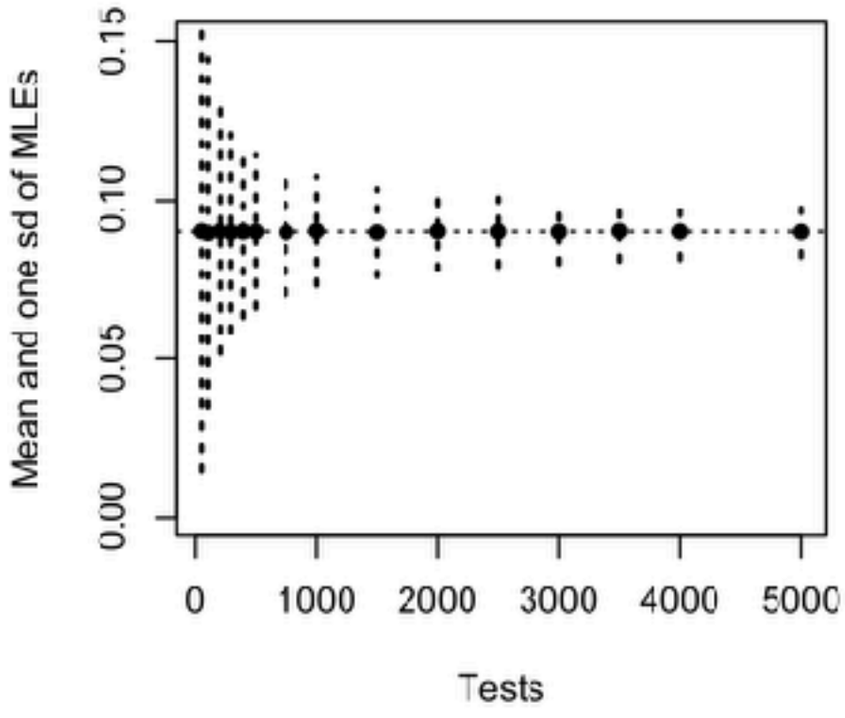


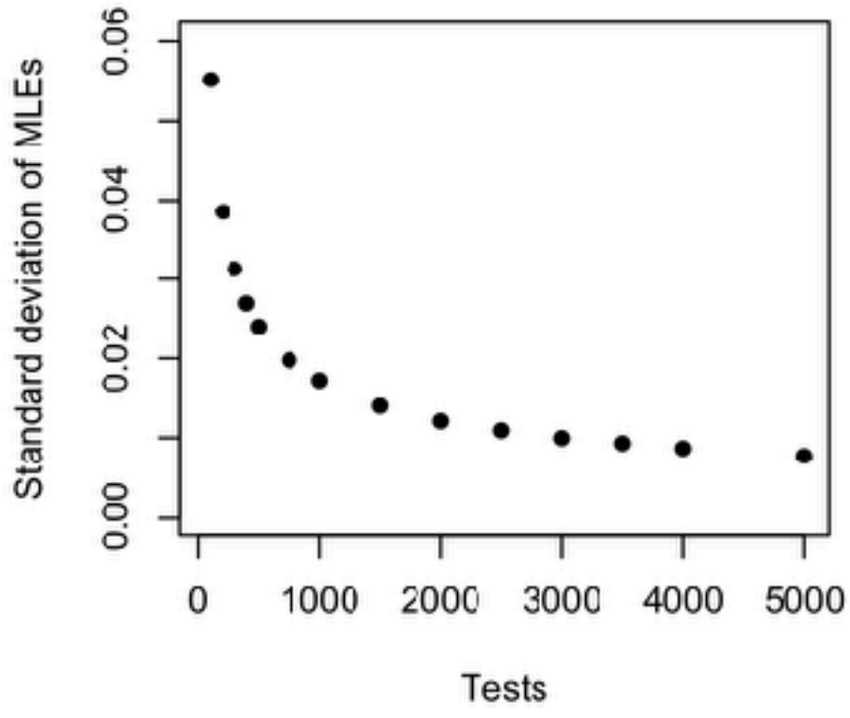


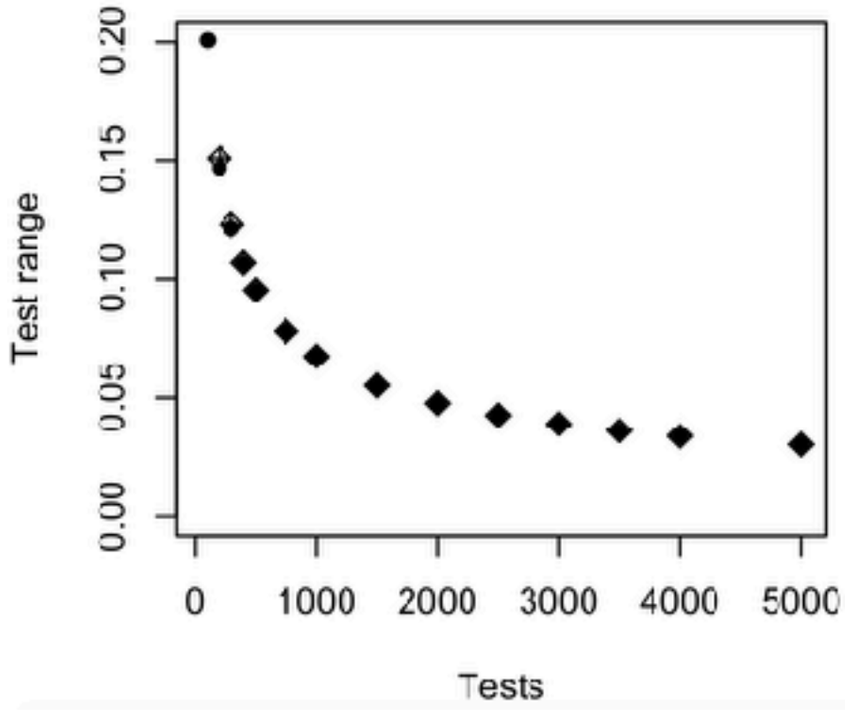


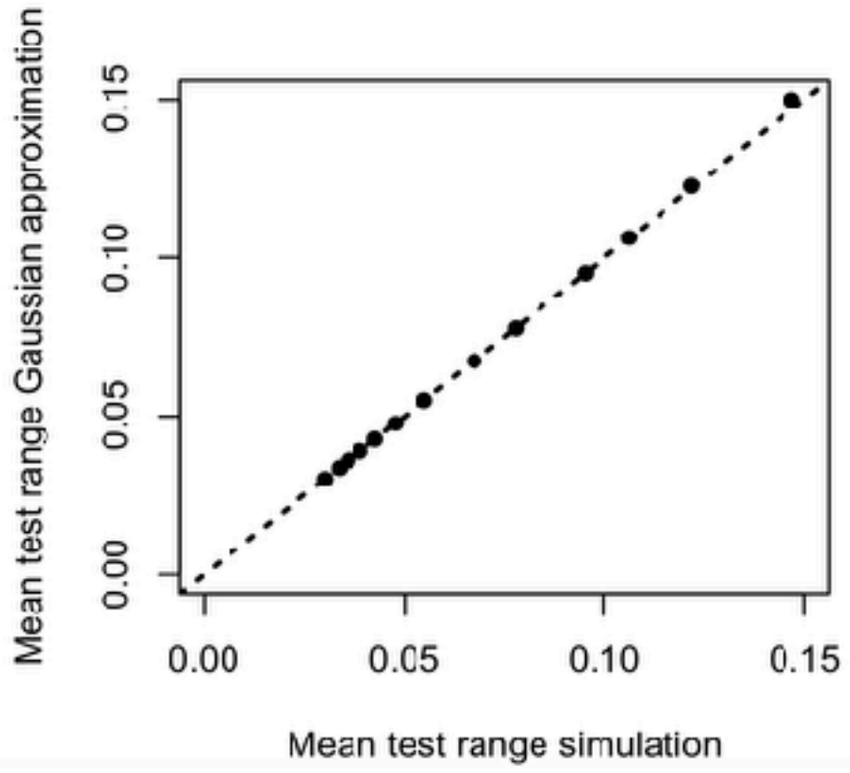


Supplementary Figure 24: $f_t = 0.09, p_{FN_t} = 0.4, p_{FP_t} = 0.05$

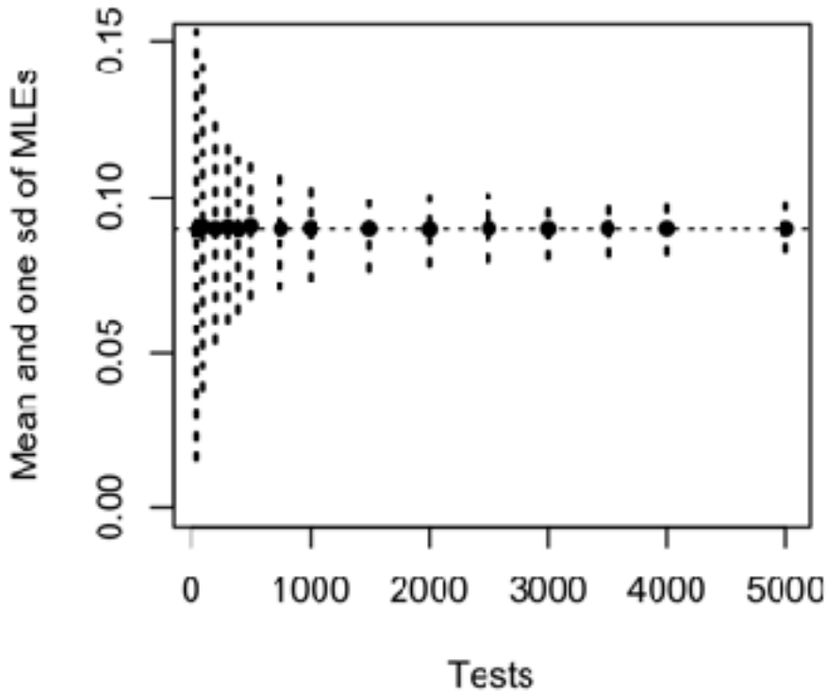


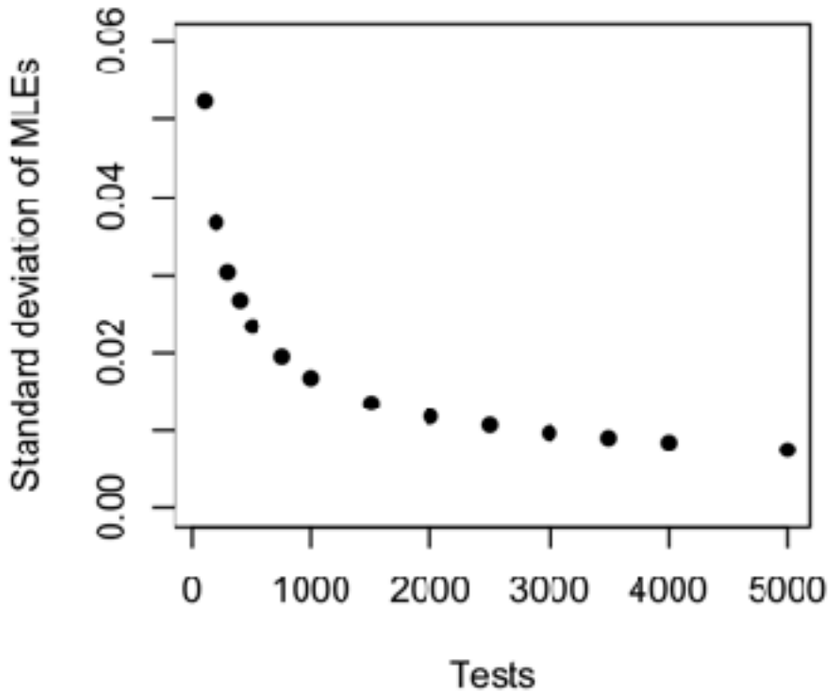


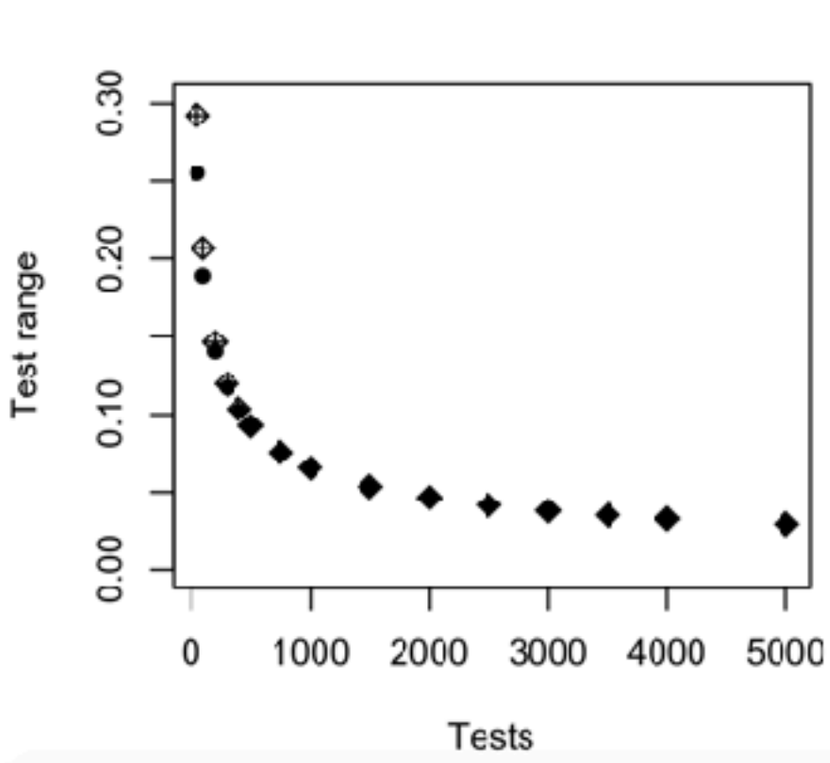


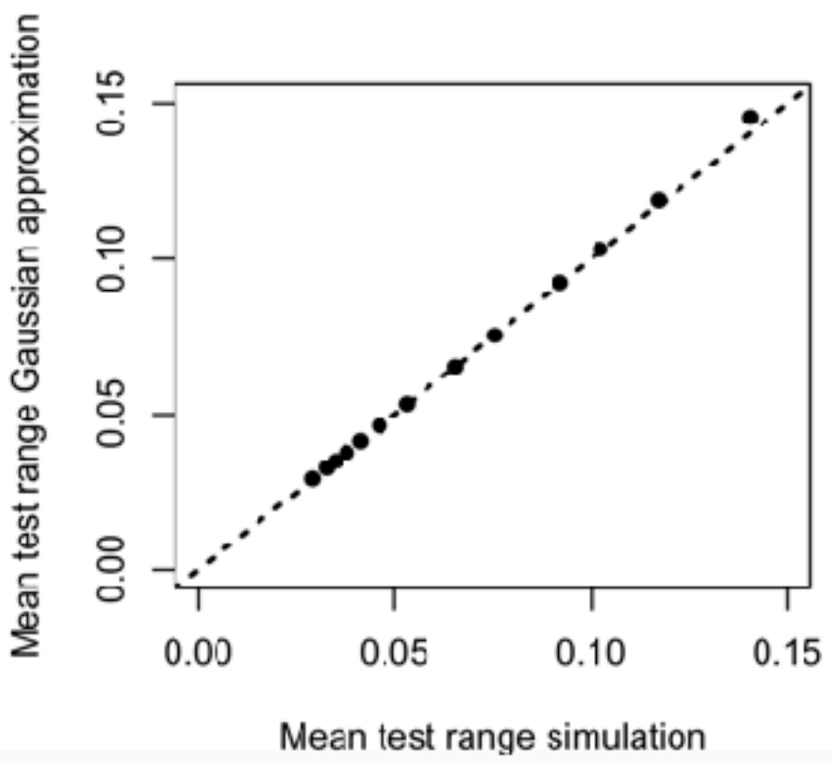


Supplementary Figure 25: $f_t = 0.09, p_{FN_t} = 0.2, p_{FP_t} = 0.1$

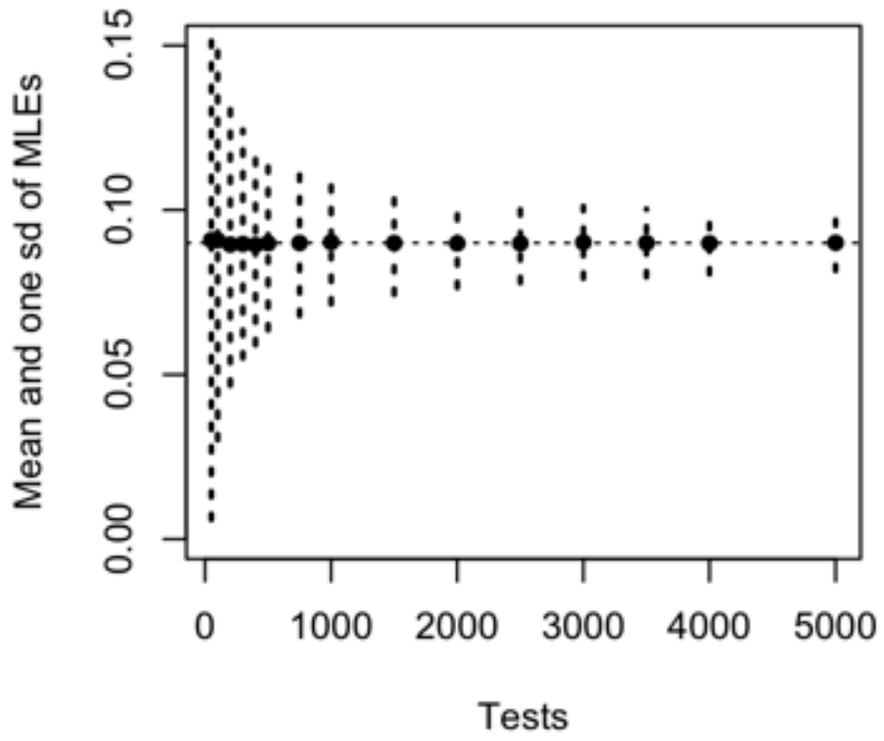


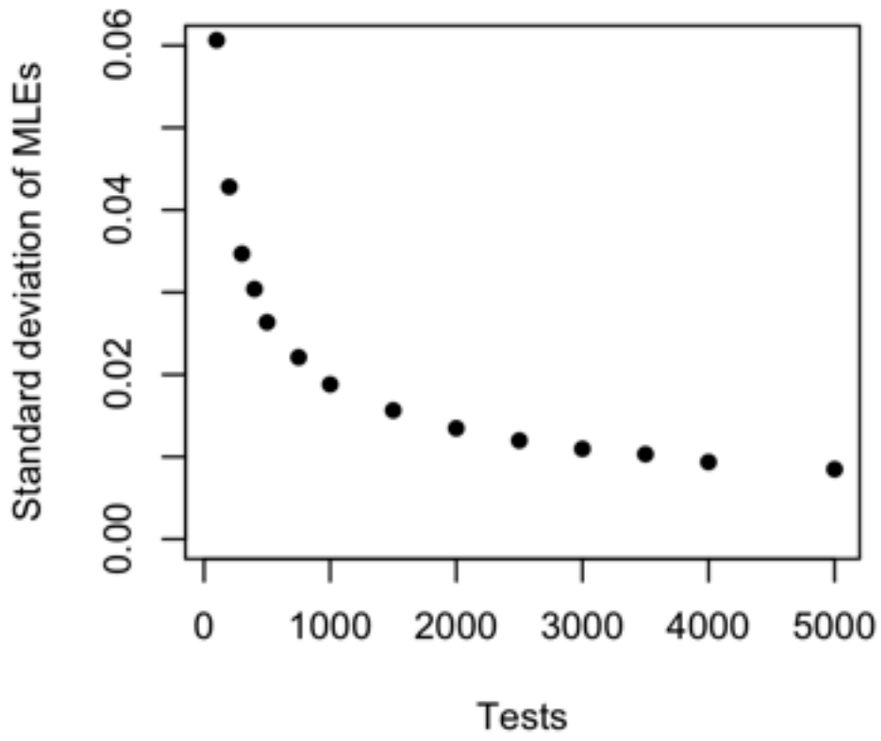


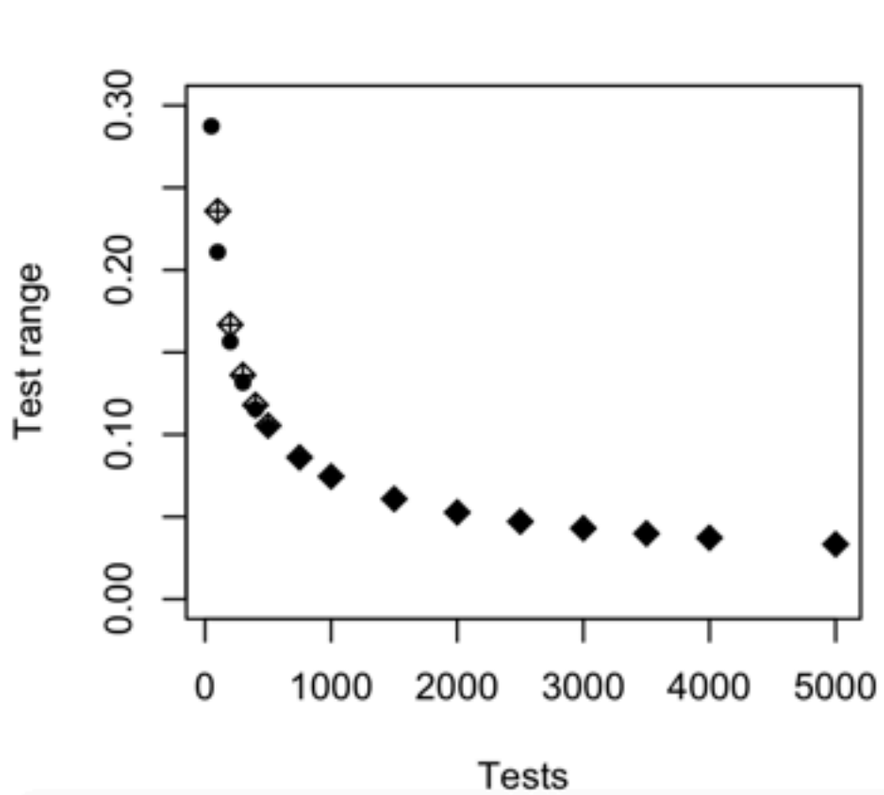


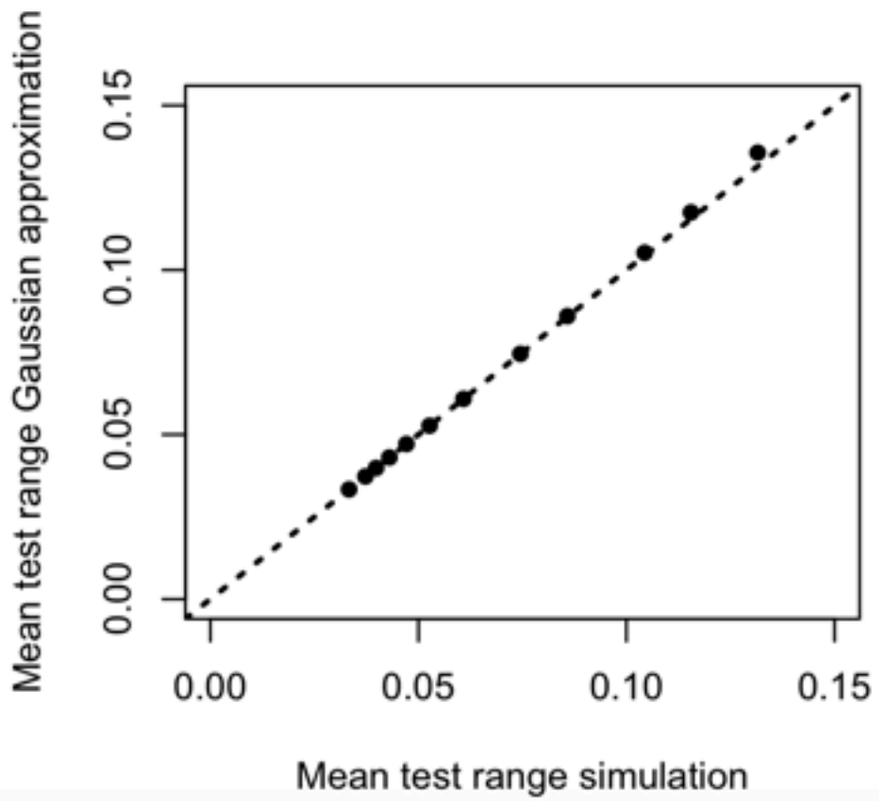


Supplementary Figure 26: $f_t = 0.09, p_{FN_t} = 0.3, p_{FP_t} = 0.1$









Supplementary Figure 27: $f_t = 0.09, p_{FN_t} = 0.4, p_{FP_t} = 0.1$