

查取GEM表来设计可靠性实验方法，GEM表如下：

|    | Number of allowable failures |        |        |        |        |        |         |         |         |         |         |
|----|------------------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| %  | 0                            | 1      | 2      | 3      | 4      | 5      | 6       | 7       | 8       | 9       | 10      |
| 95 | 2.9957                       | 4.7439 | 6.2968 | 7.7537 | 9.1536 | 10.513 | 11.8424 | 13.1481 | 14.4347 | 15.7052 | 16.9622 |
| 90 | 2.3026                       | 3.8307 | 5.3223 | 6.6808 | 7.9936 | 9.2747 | 10.5321 | 11.7709 | 12.9947 | 14.286  | 15.4066 |
| 85 | 1.8071                       | 3.3724 | 4.7231 | 6.0135 | 7.267  | 8.4947 | 9.7031  | 10.8965 | 12.0777 | 13.2488 | 14.4112 |
| 80 | 1.6094                       | 2.9943 | 4.279  | 5.5151 | 6.721  | 7.906  | 9.0757  | 10.2325 | 11.3799 | 12.6188 | 13.8507 |
| 75 | 1.3363                       | 2.6926 | 3.9204 | 5.1094 | 6.2744 | 7.4227 | 8.5585  | 9.6844  | 10.8025 | 11.9139 | 13.0196 |
| 70 | 1.204                        | 2.4392 | 3.6165 | 4.7622 | 5.8904 | 7.0056 | 8.1111  | 9.2098  | 10.3007 | 11.3073 | 12.4598 |
| 65 | 1.0498                       | 2.2189 | 3.3174 | 4.4647 | 5.5466 | 6.6331 | 7.7105  | 8.7823  | 9.8497  | 10.9132 | 11.9736 |

公式为：  $A = 0.5 \cdot X^2(1-\alpha, 2(r+1))$

$X^2(1-\alpha, 2(r+1))$  是自由度为  $2(r+1)$  的  $X^2$  分布的  $1-\alpha$  的分位数；

$\alpha$  为要求的置信度，一般设为90%；  $r$  为允许的失效数。

例如：允许失效1次时，  $A = 0.5 \cdot \text{CHIINV}(1-0.9, 2 \cdot 2) = 0.5 \cdot \text{CHIINV}(0.1, 4) = 0.5 \cdot 7.66 = 3.83$