

## SQC

### Lab-8

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#### Lab-13:

1. MIL-STD 105E is being used to inspect incoming lots of size  $N = 5000$ . Single sampling, general inspection level II, and an AQL of 0.65% are being used.

(a) Find the normal, tightened, and reduced inspection plans.

#### Solution:

(a) Given  $N=5000$ ,  $AQL=0.65\%$ , General inspection level=II, for single sampling sample size code letter=L

Normal inspection plan:  $n=200$ ,  $Ac=3$ ,  $Re=4$

Tightened inspection plan:  $n=200$ ,  $Ac=2$ ,  $Re=3$

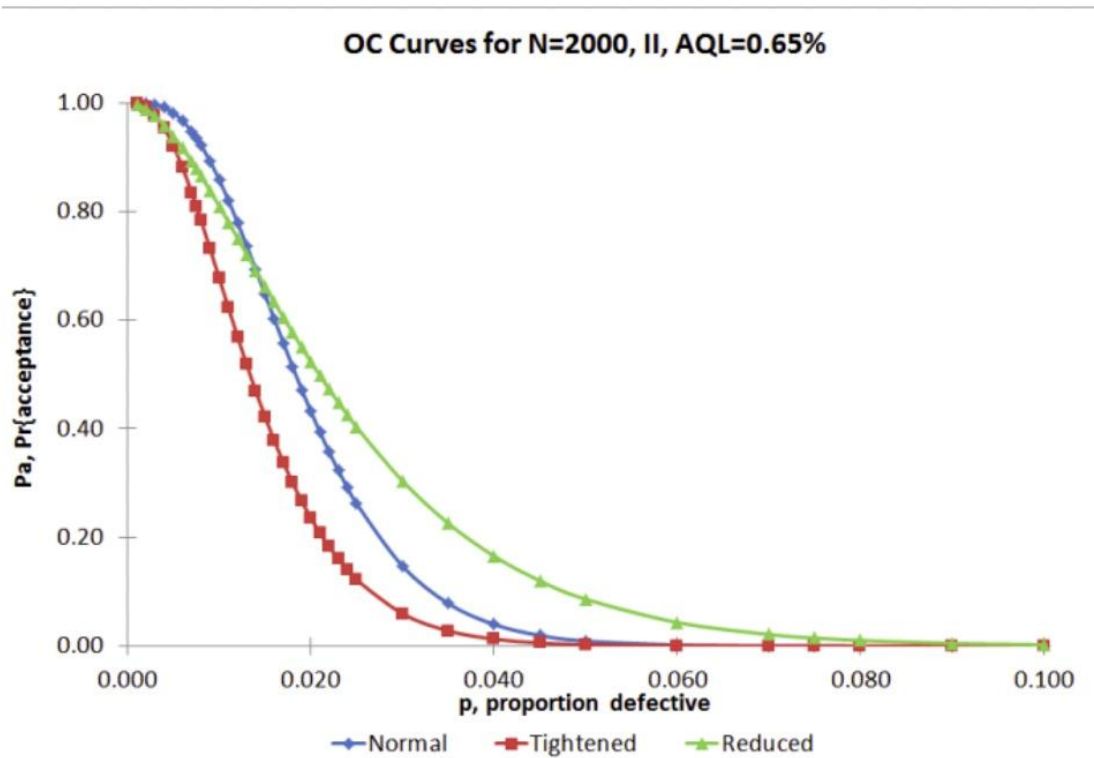
Reduced inspection plan:  $n=80$ ,  $Ac=1$ ,  $Re=4$

(b) Draw the OC curves of the normal, tightened, and reduced inspection plans on the same graph.

#### Solution:

$N=5000$	Normal	Tightened	Reduced
$n=$	200	200	80
$C=$	3	2	1
$p$	$Pa=p(d \leq 3)$	$Pa=p(d \leq 2)$	$Pa=p(d \leq 1)$
0.001	1.000	0.999	0.997

0.002	0.999	0.992	0.989
0.003	0.997	0.977	0.976
0.004	0.991	0.953	0.959
0.005	0.981	0.920	0.939
0.006	0.967	0.880	0.916
0.007	0.947	0.834	0.892
0.008	0.935	0.809	0.879
0.009	0.922	0.784	0.865
0.010	0.892	0.731	0.838
0.011	0.858	0.677	0.809
0.012	0.820	0.622	0.780
0.013	0.779	0.569	0.751
0.014	0.692	0.517	0.721
0.015	0.647	0.468	0.691
0.016	0.602	0.421	0.662
0.017	0.558	0.378	0.633
0.018	0.514	0.337	0.605
0.019	0.472	0.300	0.577
0.020	0.431	0.266	0.549
0.021	0.393	0.235	0.523
0.022	0.357	0.207	0.492
0.023	0.323	0.182	0.448
0.024	0.291	0.159	0.425
0.025	0.261	0.139	0.403
0.030	0.147	0.121	0.304
0.035	0.078	0.059	0.226
0.040	0.040	0.028	0.165
0.045	0.019	0.012	0.120
0.050	0.009	0.005	0.086
0.060	0.002	0.002	0.043
0.070	0	0	0.021
0.075	0	0	0.015
0.080	0	0	0.010
0.090	0	0	0.005
0.100	0	0	0.002



#### Lab- 14:

2. A supplier ships a component in lots of size  $N = 3000$ . The AQL has been established for this product at 1%. Find the normal, tightened, and reduced single-sampling plans for this situation from MIL-STD 105E, assuming that general inspection

(a) level II is appropriate.

(b) Level I is appropriate.

#### Solution:

(b) Given  $N=3000$ ,  $AQL=1\%$ , General inspection level=I, for single sampling sample size code letter=H

Normal inspection plan:  $n=50$ ,  $Ac=0$ ,  $Re=1$

Tightened inspection plan:  $n=50$ ,  $Ac=0$ ,  $Re=1$

Reduced inspection plan:  $n=20$ ,  $Ac=0$ ,  $Re=1$

**(a)** Given  $N=3000$ ,  $AQL=1\%$ , General inspection level=II, for single sampling  
sample size code letter=K

Normal inspection plan:  $n=125$ ,  $Ac=0$ ,  $Re=1$

Tightened inspection plan:  $n=125$ ,  $Ac=0$ ,  $Re=1$

Reduced inspection plan:  $n=50$ ,  $Ac=0$ ,  $Re=1$