





















min\_times=5ns





**Actual Cluster arrival times 6.00, 7.56, 9.14, 11.75, 13.70, 21.97, 23.15, 23.58**

min\_times=20ns



min\_times=9ns

min\_times=2ns



min\_times = 0.5ns





min\_times =1ns





|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Error | | | | | | |
| 1 cluster | 2 cluster | 4 cluster | 7 cluster | 10 cluster | 15 cluster | 21 cluster |
| 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |
| 1 | 3.7016 | 0.3242 | 0.0152 | 0.0001 | 0.0001 | 0.0001 |
| 1 | 1 | 2.0196 | 0.0311 | 0.0032 | 0.0049 | 0.0049 |
| 1 | 1 | 1.8548 | 0.0222 | 0.0222 | 0.0452 | 0.0652 |
| 1 | 1 | 1 | 0.3777 | 0.0178 | 0.073 | 0.1056 |
| 1 | 1 | 1 | 0.0096 | 0.1486 | 0.2608 | 0.2969 |
| 1 | 1 | 1 | 0.0394 | 0.002 | 0.2373 | 0.3047 |
| 1 | 1 | 1 | 1 | 0.0002 | 0.1828 | 0.2961 |
| 0.87505 | 1.21275 | 1.024875 | 0.18695 | 0.0243125 | 0.1005625 | 0.1342375 |

RMSE = 0.0340 0.0390 0.1020 0.0607 0.0337 0.0744 0.0344

Actual cluster arrival times 6.00, 18.94, 30.35, 40.17











Minimum time gap between two clusters =2ns ,







Minimum time gap between two clusters=8ns ,





























6.003,18.94,30.35,40.169,52.25,63.114







No of clusters=6; Non-overlap; cluster starting times (ns)= 3.00, 24.85, 45.90, 65.96, 87.44, 107.43

window size=18ns

RMSE= 0.0059 0.0053 0.0052 0.0052 0.0052

0.0052











No of clusters=6; Non-overlap; cluster starting times (ns)= 3.00, 24.85,45.90,65.96,87.44,107.43

window size=9ns

RMSE=

0.00590699331941033

0.00525222404911809

0.00521866598736577

0.00521351043596171

0.00523501256135159

0.00523316850774884

0.00524755248906585

0.00524561886029758

0.00524847689297319

0.00524841025462169

0.00524834290079367











No of clusters=6; overlap; cluster starting times (ns)= 3.00, 10.56,13.41, 16.20, 20.69, 26.71

Window size=4ns

RMSE=

0.00809693645624882

0.0116664136641779

0.00925852626218459

0.00741314406831410

0.00709877006767813

0.00685685015561147

0.00682433106626143

0.00682458922763270

0.00682458686978410









No of clusters=6; overlap; cluster starting times (ns)= 3.00, 10.56,13.41, 16.20, 20.69, 26.71

RMSE=

0.00809693645624882

0.0116664136641779

0.0106719787862250

0.00803980101560813

0.00743392238273718

0.00687137014651907

0.00668381416773997

0.00664754965475410

0.00664663654729874

0.00664676720807290

0.00664676431705469



Window size=3ns







