DMR Method Comparisons

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# 1. Load and Inspect the Results

## 1.1 Load Results

We have saved the tabulated results files for each method in the DMRcompare package. We will use the tidyverse package suite for data management utility. Access these via

library(DMRcompare)  
library(tidyverse)  
data("dmrcateRes\_df")  
data("probeLassoRes\_df")  
data("bumphunterRes\_df")  
data("combpRes\_df")

These data frames all contain the following common elements:

commonNames\_char <- Reduce(  
 intersect,  
 list(colnames(dmrcateRes\_df),  
 colnames(probeLassoRes\_df),  
 colnames(bumphunterRes\_df),  
 colnames(combpRes\_df))  
)  
commonNames\_char

## [1] "method" "delta" "seed" "time" "FN"   
## [6] "FP" "TN" "TP" "power" "nPower"   
## [11] "AuPR" "FPprecis" "TPprecis" "precision" "nPrecis"   
## [16] "mcc" "F1" "nCPG\_q1" "nCPG\_med" "nCPG\_q3"

### Common Columns

The common elements of interest are

* Performance metrics: false negatives (FN), false positives (FP), true negatives (TN), true positives (TP), power, the sample size used to calculate power (nPower), the area under the precision-recall curve (AuPR), precision false positives (FPprecis), precision true positives (TPprecis), precision, the sample size used to calculate precision (nPrecis), Matthews Correlation Coefficient (mcc), and the F1-score (F1). Because many of these performance metric are related to each other arithmetically, we will reduce our inspection set to AuPR, MCC, and F1.
* Parameters: the DMR-detection method used (method), the simulated effect size (delta), and the random seed to ensure reproducibility (seed).

### Method-Specific Columns

The method-specific parameters are

* DMRcate: lambda and C

setdiff(colnames(dmrcateRes\_df), commonNames\_char)

## [1] "lambda" "C"

* ProbeLasso: adjPval, mLassoRad, and minDmrSep

setdiff(colnames(probeLassoRes\_df), commonNames\_char)

## [1] "adjPval" "mLassoRad" "minDmrSep"

* Bumphunter: cutoffQ and maxGap

setdiff(colnames(bumphunterRes\_df), commonNames\_char)

## [1] "cutoffQ" "maxGap"

* Comb-p: combSeed and combDist

setdiff(colnames(combpRes\_df), commonNames\_char)

## [1] "combSeed" "combDist"

## 1.2 Select Columns of Interest

For all four of the data sets, we can remove some of the superfluous results columns. We will retain the following columns: power, AuPR, precision, MCC, F1-score, effect size, random seed, quartiles of the number of CPGs retained at each design point and parameter point interaction, and the model parameters.

resultsDMRcate\_df <-  
 dmrcateRes\_df %>%  
 select(power, AuPR, precision, mcc, F1,  
 lambda, C,  
 delta, seed, nCPG\_med, nCPG\_q3) %>%  
 mutate(nCPG\_med = as.numeric(nCPG\_med)) %>%  
 mutate(nCPG\_q3 = as.numeric(nCPG\_q3))  
  
resultsPL\_df <-  
 probeLassoRes\_df %>%  
 select(power, AuPR, precision, mcc, F1,  
 adjPval, mLassoRad, minDmrSep,  
 delta, seed, nCPG\_med, nCPG\_q3) %>%  
 mutate(nCPG\_med = as.numeric(nCPG\_med)) %>%  
 mutate(nCPG\_q3 = as.numeric(nCPG\_q3))  
  
resultsBump\_df <-  
 bumphunterRes\_df %>%  
 select(power, AuPR, precision, mcc, F1,  
 cutoffQ, maxGap,  
 delta, seed, nCPG\_med, nCPG\_q3) %>%  
 mutate(nCPG\_med = as.numeric(nCPG\_med)) %>%  
 mutate(nCPG\_q3 = as.numeric(nCPG\_q3))  
  
resultsComb\_df <-  
 combpRes\_df %>%  
 select(power, AuPR, precision, mcc, F1,  
 combSeed, combDist,  
 delta, seed, nCPG\_med, nCPG\_q3) %>%  
 mutate(nCPG\_med = as.numeric(nCPG\_med)) %>%  
 mutate(nCPG\_q3 = as.numeric(nCPG\_q3))

## 1.3 Omit Missing Values

These data sets have missing values for many of the performance metrics with no treatment effect. We will remove all experiments with missing values.

resultsDMRcate\_df <- resultsDMRcate\_df[complete.cases(resultsDMRcate\_df), ]  
resultsPL\_df <- resultsPL\_df[complete.cases(resultsPL\_df), ]  
resultsBump\_df <- resultsBump\_df[complete.cases(resultsBump\_df), ]  
resultsComb\_df <- resultsComb\_df[complete.cases(resultsComb\_df), ]

# 2 Spearman Correlations

Now that we have some clean data, we can inspect correlations between the different performance metrics and between model accuracy and parameter value.

## 2.1 Correlation Between Performance Metrics

We will now consider the Spearman correlation between AuPR and MCC and AuPR and the F1-score for each method.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | DMRcate | ProbeLasso | Bumphunter | Comb\_p |
| Cor(AuPR, MCC) | 0.9985970 | 0.9986993 | 0.6537967 | 0.9955252 |
| Cor(AuPR, F1) | 0.9988397 | 0.9989795 | 0.7741062 | 0.9958853 |

Notice that for all methods, except for Bumphunter, the information conveyed by AuPR is nearly identical to that of the MCC or F1-score measures.

## 2.2 Correlation Between Parameters and Performance

Which parameters for each method have the strongest relationships with performance?

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Parameter | Correlation | pValue |
| DMRcate | lambda | -0.1889265 | 0.0000000 |
| DMRcate | C | 0.2586212 | 0.0000000 |
| ProbeLasso | adjPval | 0.0694883 | 0.0027133 |
| ProbeLasso | mLassoRad | 0.6148738 | 0.0000000 |
| ProbeLasso | minDmrSep | 0.0068597 | 0.7674980 |
| Bumphunter | cutoffQ | -0.2458081 | 0.0000000 |
| Bumphunter | maxGap | -0.1758126 | 0.0000511 |
| Comb-p | combSeed | 0.0450990 | 0.2337214 |
| Comb-p | combDist | 0.4510015 | 0.0000000 |

### More Detail on Bumphunter

We may also care to inspect the Bumphunter results in more detail: recall that the MCC and F1-score measures were not as highly correlated with AuPR for this method. We first tabulate Bumphunter’s parameter effects on MCC.

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Parameter | Correlation | pValue |
| Bumphunter | cutoffQ | 0.4086026 | 0.0e+00 |
| Bumphunter | maxGap | -0.2033358 | 2.6e-06 |

Now we inspect Bumphunter’s parameter effects on the F1-score.

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Parameter | Correlation | pValue |
| Bumphunter | cutoffQ | 0.2435223 | 0e+00 |
| Bumphunter | maxGap | -0.2147557 | 7e-07 |

# 3 Best Parameter Settings

Now we will inspect which parameter settings yield the best AuPR values (averaged over each replicate) for each method. We will first trim each results data frame down to the AuPR, effect size, and parameters. We will also remove the design points with no effect.

resDMRc2\_df <-   
 resultsDMRcate\_df %>%   
 select(AuPR, delta, lambda, C) %>%   
 filter(delta > 0)  
  
resPL2\_df <-   
 resultsPL\_df %>%   
 select(AuPR, delta, adjPval, mLassoRad, minDmrSep) %>%   
 filter(delta > 0)  
  
resBump2\_df <-   
 resultsBump\_df %>%   
 select(AuPR, delta, cutoffQ, maxGap) %>%   
 filter(delta > 0)  
  
resComb2\_df <-   
 resultsComb\_df %>%   
 select(AuPR, delta, combSeed, combDist) %>%   
 filter(delta > 0)

## 3.1 DMRcate

Now we can find the best DMRcate parameter settings for each value of .

resDMRc2\_df %>%  
 group\_by(delta, lambda, C) %>%  
 summarise(AuPR\_ave = mean(AuPR)) %>%  
 group\_by(delta) %>%   
 filter(AuPR\_ave == max(AuPR\_ave)) %>%   
 kable()

|  |  |  |  |
| --- | --- | --- | --- |
| delta | lambda | C | AuPR\_ave |
| 0.025 | 200 | 2 | 0.2479577 |
| 0.050 | 250 | 3 | 0.5213193 |
| 0.100 | 500 | 5 | 0.7502175 |
| 0.150 | 500 | 5 | 0.8201102 |
| 0.200 | 250 | 5 | 0.8298596 |
| 0.300 | 500 | 5 | 0.8462670 |
| 0.400 | 500 | 5 | 0.8504808 |

This table shows that smaller values of lambda paired with larger values of C often yield the best results. According to the dmrcate help documentation, the ratio of lambda and C yield the parameter, and we believe that smaller values of this ratio yield more accurate results. Overall, we recommend lambda = 500 paired with C = 5.

## 3.2 ProbeLasso

Now we can find the best ProbeLasso parameter settings for each value of .

resPL2\_df %>%  
 group\_by(delta, adjPval, mLassoRad) %>%  
 summarise(AuPR\_ave = mean(AuPR)) %>%  
 group\_by(delta) %>%   
 filter(AuPR\_ave == max(AuPR\_ave)) %>%   
 kable()

|  |  |  |  |
| --- | --- | --- | --- |
| delta | adjPval | mLassoRad | AuPR\_ave |
| 0.025 | 0.1 | 1000 | 0.1737380 |
| 0.050 | 0.1 | 1000 | 0.6079171 |
| 0.100 | 0.1 | 1000 | 0.8039336 |
| 0.150 | 0.1 | 1000 | 0.8539065 |
| 0.200 | 0.1 | 1000 | 0.8658223 |
| 0.300 | 0.1 | 1000 | 0.8769554 |
| 0.400 | 0.1 | 1000 | 0.8780494 |

As expected, larger values of the meanLassoRadius yield better AuPRs. What we did not expect was that the larger adjPval values also increased the AuPR. We have seen that smaller values of adjPval increased the effect of the meanLassoRadius parameter. Also, we removed the minDmrSep parameter from this table because it had no effect and created many ties (increasing the number of rows in this table without adding new information). We tried minDmrSep = 200, 250, 500, 750, 1000, and all five values yielded equal (to the thousandth place) AuPR values.

## 3.3 Bumphunter

Now we can find the best Bumphunter parameter settings for each value of .

resBump2\_df %>%  
 group\_by(delta, cutoffQ, maxGap) %>%  
 summarise(AuPR\_ave = mean(AuPR)) %>%  
 group\_by(delta) %>%   
 filter(AuPR\_ave == max(AuPR\_ave)) %>%   
 kable()

|  |  |  |  |
| --- | --- | --- | --- |
| delta | cutoffQ | maxGap | AuPR\_ave |
| 0.025 | 0.90 | 200 | 0.4179350 |
| 0.050 | 0.90 | 200 | 0.5885761 |
| 0.100 | 0.95 | 250 | 0.6444125 |
| 0.150 | 0.95 | 250 | 0.6617105 |
| 0.200 | 0.90 | 500 | 0.6732760 |
| 0.300 | 0.90 | 500 | 0.6856742 |
| 0.400 | 0.90 | 500 | 0.6918720 |

We saw in our preliminary results that cutoffQ = 0.99 yielded poorer results, on average, so these results pertaining to the cutoffQ parameter do not surprise us. Further, we did not find any relationship between AuPR and the maxGap parameter in our preliminary work. If anything, we might take away that the smaller values of maxGap seem to fare better, and that maxGap should increase with effect size (data sets with stronger signal may need an increase in maxGap for best DMR-detection results). Overall, we have two recommendations: for weak-signal data, use cutoffQ = 0.90 with maxGap = 200; for strong-signal data, use cutoffQ = 0.90 with maxGap = 500.

## 3.4 Comb-p

Now we can find the best Comb-p parameter settings for each value of .

resComb2\_df %>%  
 group\_by(delta, combSeed, combDist) %>%  
 summarise(AuPR\_ave = mean(AuPR)) %>%  
 group\_by(delta) %>%   
 filter(AuPR\_ave == max(AuPR\_ave)) %>%   
 kable()

|  |  |  |  |
| --- | --- | --- | --- |
| delta | combSeed | combDist | AuPR\_ave |
| 0.025 | 0.10 | 1000 | 0.5682263 |
| 0.050 | 0.10 | 1000 | 0.8026972 |
| 0.100 | 0.10 | 750 | 0.9131822 |
| 0.150 | 0.10 | 750 | 0.9349463 |
| 0.200 | 0.10 | 750 | 0.9440828 |
| 0.300 | 0.10 | 750 | 0.9504056 |
| 0.400 | 0.01 | 750 | 0.9514616 |

Once again, these results are in line with our preliminary expectations: the combDist parameter drives the AuPR results much more than the combSeed parameter. It seems that larger values of combDist are better, although the size may need to taper off when Comb-p is applied to data sets with strong signal. In our previous work, we found no effect on AuPR from the combSeed parameter, but we can keep it larger to be safe. Overall, we recommend combSeed = 0.10 with combDist = 750.

# Table of All Parameter Settings

We finally have need for the supplemental tables of all performance metrics for all tested parameter settings under each delta while averaged over each seed.

## DMRcate

This table shows the average performance of the DMRcate method at each .

dmrcate\_tab <-  
 dmrcateRes\_df %>%  
 select(delta, seed, lambda, C,  
 TP, FP, FN, power, precision, AuPR, mcc, F1) %>%   
 filter(delta > 0) %>%   
 group\_by(delta, lambda, C) %>%  
 summarise(  
 TP = CalcMeanSD(TP, sigFigsMean = 0),  
 FP = CalcMeanSD(FP, sigFigsMean = 0),  
 FN = CalcMeanSD(FN, sigFigsMean = 0),  
 Pwr = CalcMeanSD(power),  
 Precis = CalcMeanSD(precision),  
 AuPR = CalcMeanSD(AuPR),  
 MCC = CalcMeanSD(mcc),  
 F1 = CalcMeanSD(F1)  
 )  
  
# write\_csv(dmrcate\_tab, path = "../resultsData/DMRcate\_total\_results.csv")  
dmrcate\_tab %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | lambda | C | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 |
| 0.025 | 200 | 1 | 25 (2.59) | 0 (0) | 475 (2.59) | 0.05 (0.01) | 1 (0) | 0.23 (0.01) | 0.2 (0.01) | 0.09 (0.01) |
| 0.025 | 200 | 2 | 33 (3.91) | 0 (0) | 467 (3.91) | 0.07 (0.01) | 1 (0) | 0.25 (0.01) | 0.23 (0.01) | 0.12 (0.01) |
| 0.025 | 200 | 3 | 29 (2.17) | 0 (0) | 471 (2.17) | 0.06 (0) | 1 (0) | 0.24 (0.01) | 0.22 (0.01) | 0.11 (0.01) |
| 0.025 | 200 | 4 | 27 (1.41) | 0 (0) | 473 (1.41) | 0.05 (0) | 1 (0) | 0.23 (0) | 0.21 (0.01) | 0.1 (0.01) |
| 0.025 | 200 | 5 | 24 (2.19) | 0 (0) | 476 (2.19) | 0.05 (0) | 1 (0) | 0.23 (0.01) | 0.2 (0.01) | 0.09 (0.01) |
| 0.025 | 250 | 1 | 18 (4.51) | 0 (0) | 482 (4.51) | 0.04 (0.01) | 1 (0) | 0.21 (0.01) | 0.17 (0.02) | 0.07 (0.02) |
| 0.025 | 250 | 2 | 30 (4.32) | 0 (0) | 470 (4.32) | 0.06 (0.01) | 1 (0) | 0.24 (0.01) | 0.22 (0.02) | 0.11 (0.02) |
| 0.025 | 250 | 3 | 32 (3.96) | 0 (0) | 468 (3.96) | 0.06 (0.01) | 1 (0) | 0.25 (0.01) | 0.23 (0.01) | 0.12 (0.01) |
| 0.025 | 250 | 4 | 29 (1.34) | 0 (0) | 471 (1.34) | 0.06 (0) | 1 (0) | 0.24 (0) | 0.22 (0.01) | 0.11 (0.01) |
| 0.025 | 250 | 5 | 27 (1.48) | 0 (0) | 473 (1.48) | 0.05 (0) | 1 (0) | 0.24 (0) | 0.21 (0.01) | 0.1 (0.01) |
| 0.025 | 500 | 1 | 8 (2.51) | 0 (0) | 492 (2.51) | 0.02 (0.01) | 1 (0) | 0.19 (0.01) | 0.12 (0.02) | 0.03 (0.01) |
| 0.025 | 500 | 2 | 19 (4.72) | 0 (0) | 481 (4.72) | 0.04 (0.01) | 1 (0) | 0.21 (0.01) | 0.18 (0.02) | 0.07 (0.02) |
| 0.025 | 500 | 3 | 26 (4.98) | 0 (0) | 474 (4.98) | 0.05 (0.01) | 1 (0) | 0.23 (0.01) | 0.21 (0.02) | 0.1 (0.02) |
| 0.025 | 500 | 4 | 30 (4.32) | 0 (0) | 470 (4.32) | 0.06 (0.01) | 1 (0) | 0.24 (0.01) | 0.22 (0.02) | 0.11 (0.02) |
| 0.025 | 500 | 5 | 32 (4.34) | 0 (0.45) | 468 (4.34) | 0.06 (0.01) | 0.99 (0.01) | 0.25 (0.01) | 0.23 (0.02) | 0.12 (0.02) |
| 0.025 | 750 | 1 | 4 (0.45) | 0 (0) | 496 (0.45) | 0.01 (0) | 1 (0) | 0.18 (0) | 0.08 (0) | 0.02 (0) |
| 0.025 | 750 | 2 | 14 (2.17) | 0 (0.45) | 486 (2.17) | 0.03 (0) | 0.98 (0.04) | 0.2 (0.01) | 0.15 (0.01) | 0.05 (0.01) |
| 0.025 | 750 | 3 | 19 (4.72) | 0 (0) | 481 (4.72) | 0.04 (0.01) | 1 (0) | 0.21 (0.01) | 0.18 (0.02) | 0.07 (0.02) |
| 0.025 | 750 | 4 | 25 (4.09) | 0 (0) | 475 (4.09) | 0.05 (0.01) | 1 (0) | 0.23 (0.01) | 0.2 (0.02) | 0.1 (0.02) |
| 0.025 | 750 | 5 | 27 (4.15) | 0 (0) | 473 (4.15) | 0.05 (0.01) | 1 (0) | 0.23 (0.01) | 0.21 (0.02) | 0.1 (0.02) |
| 0.025 | 1000 | 1 | 3 (0.84) | 0 (0) | 497 (0.84) | 0.01 (0) | 1 (0) | 0.17 (0) | 0.07 (0.01) | 0.01 (0) |
| 0.025 | 1000 | 2 | 8 (2.51) | 0 (0) | 492 (2.51) | 0.02 (0.01) | 1 (0) | 0.19 (0.01) | 0.12 (0.02) | 0.03 (0.01) |
| 0.025 | 1000 | 3 | 16 (2.59) | 0 (0) | 484 (2.59) | 0.03 (0.01) | 1 (0) | 0.21 (0.01) | 0.16 (0.01) | 0.06 (0.01) |
| 0.025 | 1000 | 4 | 19 (4.72) | 0 (0) | 481 (4.72) | 0.04 (0.01) | 1 (0) | 0.21 (0.01) | 0.18 (0.02) | 0.07 (0.02) |
| 0.025 | 1000 | 5 | 25 (2.83) | 0 (0) | 475 (2.83) | 0.05 (0.01) | 1 (0) | 0.23 (0.01) | 0.2 (0.01) | 0.09 (0.01) |
| 0.050 | 200 | 1 | 153 (11.34) | 4 (0.84) | 347 (11.34) | 0.31 (0.02) | 0.98 (0.01) | 0.48 (0.02) | 0.51 (0.02) | 0.46 (0.03) |
| 0.050 | 200 | 2 | 178 (9.78) | 3 (1.22) | 322 (9.78) | 0.36 (0.02) | 0.98 (0.01) | 0.52 (0.02) | 0.56 (0.02) | 0.52 (0.02) |
| 0.050 | 200 | 3 | 174 (7.12) | 2 (1.1) | 326 (7.12) | 0.35 (0.01) | 0.99 (0.01) | 0.52 (0.01) | 0.55 (0.01) | 0.51 (0.02) |
| 0.050 | 200 | 4 | 166 (8.05) | 1 (1.14) | 334 (8.05) | 0.33 (0.02) | 0.99 (0.01) | 0.51 (0.01) | 0.54 (0.02) | 0.5 (0.02) |
| 0.050 | 200 | 5 | 167 (8.73) | 1 (0.89) | 333 (8.73) | 0.33 (0.02) | 0.99 (0.01) | 0.51 (0.02) | 0.54 (0.02) | 0.5 (0.02) |
| 0.050 | 250 | 1 | 141 (10.83) | 3 (1.34) | 359 (10.83) | 0.28 (0.02) | 0.98 (0.01) | 0.46 (0.02) | 0.49 (0.02) | 0.44 (0.03) |
| 0.050 | 250 | 2 | 172 (8.34) | 3 (1.95) | 328 (8.34) | 0.34 (0.02) | 0.98 (0.01) | 0.51 (0.01) | 0.54 (0.02) | 0.51 (0.02) |
| 0.050 | 250 | 3 | 177 (8.01) | 2 (0.84) | 323 (8.01) | 0.35 (0.02) | 0.99 (0) | 0.52 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.050 | 250 | 4 | 173 (7.92) | 2 (1.1) | 327 (7.92) | 0.35 (0.02) | 0.99 (0.01) | 0.52 (0.01) | 0.55 (0.01) | 0.51 (0.02) |
| 0.050 | 250 | 5 | 168 (8.26) | 1 (1.14) | 332 (8.26) | 0.34 (0.02) | 0.99 (0.01) | 0.51 (0.01) | 0.54 (0.02) | 0.5 (0.02) |
| 0.050 | 500 | 1 | 93 (8.08) | 2 (1.34) | 407 (8.08) | 0.19 (0.02) | 0.98 (0.01) | 0.37 (0.02) | 0.39 (0.02) | 0.31 (0.02) |
| 0.050 | 500 | 2 | 140 (11.39) | 3 (1.3) | 360 (11.39) | 0.28 (0.02) | 0.98 (0.01) | 0.46 (0.02) | 0.49 (0.02) | 0.43 (0.03) |
| 0.050 | 500 | 3 | 163 (10.08) | 4 (0.84) | 337 (10.08) | 0.33 (0.02) | 0.98 (0.01) | 0.5 (0.02) | 0.53 (0.02) | 0.49 (0.02) |
| 0.050 | 500 | 4 | 172 (8.62) | 3 (1.95) | 328 (8.62) | 0.34 (0.02) | 0.98 (0.01) | 0.51 (0.01) | 0.54 (0.02) | 0.51 (0.02) |
| 0.050 | 500 | 5 | 178 (9.63) | 3 (1.22) | 322 (9.63) | 0.36 (0.02) | 0.98 (0.01) | 0.52 (0.02) | 0.55 (0.02) | 0.52 (0.02) |
| 0.050 | 750 | 1 | 69 (7.01) | 1 (1.22) | 431 (7.01) | 0.14 (0.01) | 0.99 (0.02) | 0.32 (0.02) | 0.34 (0.02) | 0.24 (0.02) |
| 0.050 | 750 | 2 | 115 (12.99) | 3 (2.41) | 385 (12.99) | 0.23 (0.03) | 0.98 (0.02) | 0.41 (0.03) | 0.44 (0.03) | 0.37 (0.03) |
| 0.050 | 750 | 3 | 140 (11.63) | 3 (1.3) | 360 (11.63) | 0.28 (0.02) | 0.98 (0.01) | 0.46 (0.02) | 0.49 (0.02) | 0.43 (0.03) |
| 0.050 | 750 | 4 | 156 (9.43) | 4 (1.1) | 344 (9.43) | 0.31 (0.02) | 0.98 (0.01) | 0.48 (0.02) | 0.51 (0.02) | 0.47 (0.02) |
| 0.050 | 750 | 5 | 166 (8.53) | 4 (1.1) | 334 (8.53) | 0.33 (0.02) | 0.98 (0.01) | 0.5 (0.02) | 0.53 (0.02) | 0.49 (0.02) |
| 0.050 | 1000 | 1 | 52 (5.85) | 1 (0.84) | 448 (5.85) | 0.1 (0.01) | 0.98 (0.02) | 0.29 (0.01) | 0.29 (0.02) | 0.18 (0.02) |
| 0.050 | 1000 | 2 | 93 (8.77) | 2 (1.34) | 407 (8.77) | 0.19 (0.02) | 0.98 (0.01) | 0.37 (0.02) | 0.39 (0.02) | 0.31 (0.03) |
| 0.050 | 1000 | 3 | 123 (11.82) | 3 (2.17) | 377 (11.82) | 0.25 (0.02) | 0.98 (0.02) | 0.43 (0.02) | 0.45 (0.03) | 0.39 (0.03) |
| 0.050 | 1000 | 4 | 140 (11.63) | 3 (1.3) | 360 (11.63) | 0.28 (0.02) | 0.98 (0.01) | 0.46 (0.02) | 0.49 (0.02) | 0.43 (0.03) |
| 0.050 | 1000 | 5 | 153 (11.41) | 4 (1.52) | 347 (11.41) | 0.31 (0.02) | 0.97 (0.01) | 0.48 (0.02) | 0.51 (0.02) | 0.46 (0.03) |
| 0.100 | 200 | 1 | 284 (9.76) | 9 (1.67) | 216 (9.76) | 0.57 (0.02) | 0.97 (0.01) | 0.69 (0.01) | 0.71 (0.01) | 0.72 (0.02) |
| 0.100 | 200 | 2 | 317 (9.68) | 8 (3.67) | 183 (9.68) | 0.63 (0.02) | 0.98 (0.01) | 0.74 (0.01) | 0.76 (0.01) | 0.77 (0.02) |
| 0.100 | 200 | 3 | 319 (11.12) | 5 (2.55) | 181 (11.12) | 0.64 (0.02) | 0.98 (0.01) | 0.74 (0.01) | 0.76 (0.01) | 0.77 (0.02) |
| 0.100 | 200 | 4 | 316 (12.4) | 4 (2.45) | 184 (12.4) | 0.63 (0.02) | 0.99 (0.01) | 0.74 (0.02) | 0.76 (0.02) | 0.77 (0.02) |
| 0.100 | 200 | 5 | 315 (12.14) | 2 (1.34) | 185 (12.14) | 0.63 (0.02) | 0.99 (0) | 0.74 (0.02) | 0.76 (0.02) | 0.77 (0.02) |
| 0.100 | 250 | 1 | 266 (11.9) | 9 (0.84) | 234 (11.9) | 0.53 (0.02) | 0.97 (0) | 0.66 (0.02) | 0.68 (0.02) | 0.68 (0.02) |
| 0.100 | 250 | 2 | 313 (7.79) | 9 (3.11) | 187 (7.79) | 0.63 (0.02) | 0.97 (0.01) | 0.73 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.100 | 250 | 3 | 322 (8.46) | 7 (2.39) | 178 (8.46) | 0.64 (0.02) | 0.98 (0.01) | 0.74 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.100 | 250 | 4 | 324 (11.48) | 5 (2.35) | 176 (11.48) | 0.65 (0.02) | 0.98 (0.01) | 0.75 (0.02) | 0.77 (0.02) | 0.78 (0.02) |
| 0.100 | 250 | 5 | 323 (12.14) | 4 (2.17) | 177 (12.14) | 0.65 (0.02) | 0.99 (0.01) | 0.75 (0.02) | 0.77 (0.02) | 0.78 (0.02) |
| 0.100 | 500 | 1 | 192 (6.06) | 6 (2.95) | 308 (6.06) | 0.38 (0.01) | 0.97 (0.01) | 0.54 (0.01) | 0.57 (0.01) | 0.55 (0.01) |
| 0.100 | 500 | 2 | 268 (13.37) | 10 (1.48) | 232 (13.37) | 0.54 (0.03) | 0.97 (0) | 0.66 (0.02) | 0.68 (0.02) | 0.69 (0.02) |
| 0.100 | 500 | 3 | 302 (10.47) | 8 (2.3) | 198 (10.47) | 0.6 (0.02) | 0.97 (0.01) | 0.71 (0.02) | 0.73 (0.01) | 0.74 (0.02) |
| 0.100 | 500 | 4 | 318 (7.35) | 9 (3.11) | 182 (7.35) | 0.64 (0.01) | 0.97 (0.01) | 0.74 (0.01) | 0.76 (0.01) | 0.77 (0.01) |
| 0.100 | 500 | 5 | 326 (9.29) | 8 (3.35) | 174 (9.29) | 0.65 (0.02) | 0.98 (0.01) | 0.75 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.100 | 750 | 1 | 153 (3.54) | 4 (1.52) | 347 (3.54) | 0.31 (0.01) | 0.98 (0.01) | 0.48 (0.01) | 0.51 (0.01) | 0.46 (0.01) |
| 0.100 | 750 | 2 | 222 (9.29) | 6 (3.44) | 278 (9.29) | 0.44 (0.02) | 0.97 (0.01) | 0.59 (0.02) | 0.62 (0.02) | 0.6 (0.02) |
| 0.100 | 750 | 3 | 269 (13.06) | 10 (1.22) | 231 (13.06) | 0.54 (0.03) | 0.96 (0) | 0.66 (0.02) | 0.68 (0.02) | 0.69 (0.02) |
| 0.100 | 750 | 4 | 297 (8.56) | 9 (1.82) | 203 (8.56) | 0.59 (0.02) | 0.97 (0.01) | 0.7 (0.01) | 0.72 (0.01) | 0.73 (0.01) |
| 0.100 | 750 | 5 | 310 (9.76) | 9 (2.39) | 190 (9.76) | 0.62 (0.02) | 0.97 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.75 (0.01) |
| 0.100 | 1000 | 1 | 130 (1.95) | 4 (0.89) | 370 (1.95) | 0.26 (0) | 0.97 (0.01) | 0.44 (0) | 0.47 (0) | 0.41 (0.01) |
| 0.100 | 1000 | 2 | 192 (5.55) | 6 (2.95) | 308 (5.55) | 0.38 (0.01) | 0.97 (0.01) | 0.54 (0.01) | 0.57 (0.01) | 0.55 (0.01) |
| 0.100 | 1000 | 3 | 236 (9.15) | 8 (1.52) | 264 (9.15) | 0.47 (0.02) | 0.97 (0.01) | 0.61 (0.02) | 0.64 (0.01) | 0.63 (0.02) |
| 0.100 | 1000 | 4 | 270 (12.68) | 10 (1.22) | 230 (12.68) | 0.54 (0.03) | 0.97 (0) | 0.66 (0.02) | 0.68 (0.02) | 0.69 (0.02) |
| 0.100 | 1000 | 5 | 292 (9.13) | 10 (2) | 208 (9.13) | 0.58 (0.02) | 0.97 (0.01) | 0.7 (0.02) | 0.72 (0.01) | 0.73 (0.01) |
| 0.150 | 200 | 1 | 323 (9.66) | 11 (2.12) | 177 (9.66) | 0.65 (0.02) | 0.97 (0.01) | 0.75 (0.02) | 0.76 (0.01) | 0.77 (0.01) |
| 0.150 | 200 | 2 | 359 (6.58) | 10 (3.03) | 141 (6.58) | 0.72 (0.01) | 0.97 (0.01) | 0.8 (0.01) | 0.81 (0.01) | 0.83 (0.01) |
| 0.150 | 200 | 3 | 361 (5.94) | 8 (3.05) | 139 (5.94) | 0.72 (0.01) | 0.98 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.150 | 200 | 4 | 362 (6.66) | 6 (3.36) | 138 (6.66) | 0.72 (0.01) | 0.98 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.150 | 200 | 5 | 361 (7.66) | 4 (2.35) | 139 (7.66) | 0.72 (0.02) | 0.99 (0.01) | 0.81 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.150 | 250 | 1 | 308 (6.84) | 11 (1.87) | 192 (6.84) | 0.62 (0.01) | 0.97 (0.01) | 0.72 (0.02) | 0.74 (0.01) | 0.75 (0.01) |
| 0.150 | 250 | 2 | 357 (7.78) | 11 (3.49) | 143 (7.78) | 0.71 (0.02) | 0.97 (0.01) | 0.79 (0.01) | 0.81 (0.01) | 0.82 (0.01) |
| 0.150 | 250 | 3 | 366 (9.39) | 9 (3.05) | 134 (9.39) | 0.73 (0.02) | 0.98 (0.01) | 0.8 (0.02) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 250 | 4 | 371 (8.2) | 7 (3.08) | 129 (8.2) | 0.74 (0.02) | 0.98 (0.01) | 0.81 (0.02) | 0.83 (0.01) | 0.84 (0.01) |
| 0.150 | 250 | 5 | 372 (7.37) | 6 (3.36) | 128 (7.37) | 0.74 (0.01) | 0.99 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.150 | 500 | 1 | 238 (8.05) | 11 (1.14) | 262 (8.05) | 0.48 (0.02) | 0.96 (0.01) | 0.61 (0.02) | 0.64 (0.01) | 0.63 (0.01) |
| 0.150 | 500 | 2 | 314 (6.77) | 13 (3.27) | 186 (6.77) | 0.63 (0.01) | 0.96 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 500 | 3 | 348 (5.81) | 13 (3.51) | 152 (5.81) | 0.7 (0.01) | 0.97 (0.01) | 0.78 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.150 | 500 | 4 | 366 (6.69) | 11 (3.49) | 134 (6.69) | 0.73 (0.01) | 0.97 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.150 | 500 | 5 | 376 (6.69) | 10 (3.03) | 124 (6.69) | 0.75 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.150 | 750 | 1 | 195 (5.96) | 7 (2) | 305 (5.96) | 0.39 (0.01) | 0.97 (0.01) | 0.54 (0.01) | 0.57 (0.01) | 0.55 (0.01) |
| 0.150 | 750 | 2 | 270 (6.91) | 11 (1.64) | 230 (6.91) | 0.54 (0.01) | 0.96 (0.01) | 0.66 (0.02) | 0.68 (0.01) | 0.69 (0.01) |
| 0.150 | 750 | 3 | 314 (5.96) | 13 (2.88) | 186 (5.96) | 0.63 (0.01) | 0.96 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 750 | 4 | 342 (5.37) | 14 (3.51) | 158 (5.37) | 0.68 (0.01) | 0.96 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 750 | 5 | 357 (5.81) | 13 (3.13) | 143 (5.81) | 0.71 (0.01) | 0.97 (0.01) | 0.79 (0.01) | 0.8 (0.01) | 0.82 (0.01) |
| 0.150 | 1000 | 1 | 167 (10.17) | 6 (2.51) | 333 (10.17) | 0.33 (0.02) | 0.97 (0.01) | 0.5 (0.02) | 0.53 (0.02) | 0.49 (0.02) |
| 0.150 | 1000 | 2 | 238 (8.47) | 11 (1.3) | 262 (8.47) | 0.48 (0.02) | 0.96 (0.01) | 0.61 (0.02) | 0.64 (0.01) | 0.63 (0.02) |
| 0.150 | 1000 | 3 | 283 (4.45) | 11 (3.03) | 217 (4.45) | 0.57 (0.01) | 0.96 (0.01) | 0.68 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 1000 | 4 | 315 (5.15) | 14 (3.13) | 185 (5.15) | 0.63 (0.01) | 0.96 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 1000 | 5 | 339 (7.27) | 14 (3.11) | 161 (7.27) | 0.68 (0.01) | 0.96 (0.01) | 0.76 (0.02) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 200 | 1 | 335 (7.37) | 11 (2.17) | 165 (7.37) | 0.67 (0.01) | 0.97 (0.01) | 0.76 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 200 | 2 | 363 (7.64) | 10 (3.16) | 137 (7.64) | 0.73 (0.02) | 0.97 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.200 | 200 | 3 | 368 (7.04) | 7 (3.03) | 132 (7.04) | 0.74 (0.01) | 0.98 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.84 (0.01) |
| 0.200 | 200 | 4 | 367 (6.87) | 5 (2.79) | 133 (6.87) | 0.73 (0.01) | 0.99 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.84 (0.01) |
| 0.200 | 200 | 5 | 370 (6.06) | 4 (2.28) | 130 (6.06) | 0.74 (0.01) | 0.99 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 250 | 1 | 321 (7.64) | 12 (2.7) | 179 (7.64) | 0.64 (0.02) | 0.96 (0.01) | 0.74 (0.01) | 0.76 (0.01) | 0.77 (0.01) |
| 0.200 | 250 | 2 | 365 (7.63) | 12 (3.74) | 135 (7.63) | 0.73 (0.02) | 0.97 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 0.83 (0.01) |
| 0.200 | 250 | 3 | 375 (7.64) | 9 (3.36) | 125 (7.64) | 0.75 (0.02) | 0.98 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 250 | 4 | 379 (4.56) | 6 (3.21) | 121 (4.56) | 0.76 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.200 | 250 | 5 | 381 (6.53) | 6 (2.51) | 119 (6.53) | 0.76 (0.01) | 0.99 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.200 | 500 | 1 | 254 (7.5) | 13 (1.79) | 246 (7.5) | 0.51 (0.02) | 0.95 (0.01) | 0.64 (0.01) | 0.66 (0.01) | 0.66 (0.01) |
| 0.200 | 500 | 2 | 329 (3.83) | 14 (3.56) | 171 (3.83) | 0.66 (0.01) | 0.96 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.200 | 500 | 3 | 361 (3.03) | 14 (4.28) | 139 (3.03) | 0.72 (0.01) | 0.96 (0.01) | 0.79 (0.01) | 0.81 (0.01) | 0.82 (0.01) |
| 0.200 | 500 | 4 | 376 (5.15) | 12 (3.74) | 124 (5.15) | 0.75 (0.01) | 0.97 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 500 | 5 | 385 (5.79) | 10 (2.86) | 115 (5.79) | 0.77 (0.01) | 0.97 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.200 | 750 | 1 | 236 (5.81) | 9 (1.87) | 264 (5.81) | 0.47 (0.01) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.01) |
| 0.200 | 750 | 2 | 286 (7.12) | 13 (2.35) | 214 (7.12) | 0.57 (0.01) | 0.96 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.200 | 750 | 3 | 330 (3.9) | 14 (3.11) | 170 (3.9) | 0.66 (0.01) | 0.96 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.200 | 750 | 4 | 356 (3.36) | 14 (3.81) | 144 (3.36) | 0.71 (0.01) | 0.96 (0.01) | 0.79 (0.01) | 0.8 (0.01) | 0.82 (0.01) |
| 0.200 | 750 | 5 | 371 (4.62) | 13 (3.56) | 129 (4.62) | 0.74 (0.01) | 0.97 (0.01) | 0.81 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.200 | 1000 | 1 | 221 (6.16) | 8 (3.27) | 279 (6.16) | 0.44 (0.01) | 0.97 (0.01) | 0.59 (0.01) | 0.61 (0) | 0.6 (0.01) |
| 0.200 | 1000 | 2 | 256 (8.54) | 12 (2.3) | 244 (8.54) | 0.51 (0.02) | 0.96 (0.01) | 0.64 (0.01) | 0.66 (0.01) | 0.66 (0.01) |
| 0.200 | 1000 | 3 | 299 (6.69) | 13 (2.97) | 201 (6.69) | 0.6 (0.01) | 0.96 (0.01) | 0.71 (0.02) | 0.72 (0.01) | 0.73 (0.01) |
| 0.200 | 1000 | 4 | 331 (4.56) | 14 (3.36) | 169 (4.56) | 0.66 (0.01) | 0.96 (0.01) | 0.75 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.200 | 1000 | 5 | 353 (3.56) | 15 (3.46) | 147 (3.56) | 0.71 (0.01) | 0.96 (0.01) | 0.78 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.300 | 200 | 1 | 345 (5.67) | 11 (2.74) | 155 (5.67) | 0.69 (0.01) | 0.97 (0.01) | 0.77 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.300 | 200 | 2 | 372 (5.46) | 10 (2.59) | 128 (5.46) | 0.74 (0.01) | 0.97 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.84 (0.01) |
| 0.300 | 200 | 3 | 376 (7.25) | 7 (2.97) | 124 (7.25) | 0.75 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.84 (0.01) | 0.85 (0.01) |
| 0.300 | 200 | 4 | 377 (8.06) | 5 (2.79) | 123 (8.06) | 0.75 (0.02) | 0.99 (0.01) | 0.82 (0.01) | 0.84 (0.01) | 0.85 (0.01) |
| 0.300 | 200 | 5 | 378 (7.5) | 4 (2.28) | 122 (7.5) | 0.76 (0.02) | 0.99 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.300 | 250 | 1 | 337 (1.67) | 13 (2.49) | 163 (1.67) | 0.67 (0) | 0.96 (0.01) | 0.76 (0.01) | 0.78 (0) | 0.79 (0) |
| 0.300 | 250 | 2 | 377 (4.32) | 12 (2.74) | 123 (4.32) | 0.75 (0.01) | 0.97 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.300 | 250 | 3 | 385 (5.07) | 9 (3.29) | 115 (5.07) | 0.77 (0.01) | 0.98 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.300 | 250 | 4 | 388 (4.87) | 6 (2.7) | 112 (4.87) | 0.78 (0.01) | 0.98 (0.01) | 0.84 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 250 | 5 | 391 (5.86) | 5 (2.79) | 109 (5.86) | 0.78 (0.01) | 0.99 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 0.87 (0.01) |
| 0.300 | 500 | 1 | 338 (7.2) | 15 (0.71) | 162 (7.2) | 0.68 (0.01) | 0.96 (0) | 0.76 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.300 | 500 | 2 | 349 (3.13) | 17 (4.21) | 151 (3.13) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.79 (0.01) | 0.8 (0) |
| 0.300 | 500 | 3 | 375 (4.21) | 13 (3.13) | 125 (4.21) | 0.75 (0.01) | 0.97 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.84 (0.01) |
| 0.300 | 500 | 4 | 389 (3.13) | 12 (2.74) | 111 (3.13) | 0.78 (0.01) | 0.97 (0.01) | 0.83 (0) | 0.85 (0.01) | 0.86 (0) |
| 0.300 | 500 | 5 | 398 (1.79) | 10 (2.59) | 102 (1.79) | 0.8 (0) | 0.98 (0.01) | 0.85 (0) | 0.86 (0) | 0.88 (0) |
| 0.300 | 750 | 1 | 331 (6.91) | 14 (2.61) | 169 (6.91) | 0.66 (0.01) | 0.96 (0.01) | 0.75 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.300 | 750 | 2 | 344 (8.29) | 17 (3.7) | 156 (8.29) | 0.69 (0.02) | 0.96 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 750 | 3 | 350 (3.11) | 17 (3.78) | 150 (3.11) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.79 (0.01) | 0.81 (0) |
| 0.300 | 750 | 4 | 370 (2.61) | 14 (2.65) | 130 (2.61) | 0.74 (0.01) | 0.96 (0.01) | 0.8 (0.01) | 0.82 (0) | 0.84 (0) |
| 0.300 | 750 | 5 | 384 (2.3) | 12 (3.32) | 116 (2.3) | 0.77 (0) | 0.97 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.300 | 1000 | 1 | 323 (7.58) | 15 (3.78) | 177 (7.58) | 0.65 (0.02) | 0.96 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.77 (0.01) |
| 0.300 | 1000 | 2 | 341 (7.09) | 15 (2.61) | 159 (7.09) | 0.68 (0.01) | 0.96 (0.01) | 0.76 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 1000 | 3 | 349 (7.16) | 19 (3.29) | 151 (7.16) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 1000 | 4 | 352 (4.04) | 17 (3.78) | 148 (4.04) | 0.7 (0.01) | 0.95 (0.01) | 0.78 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.300 | 1000 | 5 | 368 (1.87) | 14 (2.49) | 132 (1.87) | 0.74 (0) | 0.96 (0.01) | 0.8 (0.01) | 0.82 (0) | 0.83 (0) |
| 0.400 | 200 | 1 | 354 (6.95) | 12 (2.88) | 146 (6.95) | 0.71 (0.01) | 0.97 (0.01) | 0.78 (0.01) | 0.8 (0.01) | 0.82 (0.01) |
| 0.400 | 200 | 2 | 373 (3.65) | 9 (4.34) | 127 (3.65) | 0.75 (0.01) | 0.98 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.400 | 200 | 3 | 379 (4.64) | 7 (3.36) | 121 (4.64) | 0.76 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.84 (0.01) | 0.85 (0.01) |
| 0.400 | 200 | 4 | 380 (7.31) | 6 (3.05) | 120 (7.31) | 0.76 (0.01) | 0.99 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.400 | 200 | 5 | 382 (7.43) | 4 (3.05) | 118 (7.43) | 0.76 (0.01) | 0.99 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.400 | 250 | 1 | 372 (6.72) | 15 (3) | 128 (6.72) | 0.74 (0.01) | 0.96 (0.01) | 0.81 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.400 | 250 | 2 | 378 (4.34) | 13 (3.58) | 122 (4.34) | 0.76 (0.01) | 0.97 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.400 | 250 | 3 | 387 (3.65) | 8 (3.7) | 113 (3.65) | 0.77 (0.01) | 0.98 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.400 | 250 | 4 | 391 (4.34) | 6 (3.03) | 109 (4.34) | 0.78 (0.01) | 0.98 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 0.87 (0.01) |
| 0.400 | 250 | 5 | 396 (6.06) | 6 (3.05) | 104 (6.06) | 0.79 (0.01) | 0.99 (0.01) | 0.85 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 500 | 1 | 388 (5.59) | 17 (1.79) | 112 (5.59) | 0.78 (0.01) | 0.96 (0) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.400 | 500 | 2 | 392 (4.38) | 20 (4) | 108 (4.38) | 0.78 (0.01) | 0.95 (0.01) | 0.83 (0) | 0.84 (0) | 0.86 (0) |
| 0.400 | 500 | 3 | 381 (2.7) | 13 (3.7) | 119 (2.7) | 0.76 (0.01) | 0.97 (0.01) | 0.82 (0.01) | 0.84 (0.01) | 0.85 (0) |
| 0.400 | 500 | 4 | 392 (3.61) | 13 (3.42) | 108 (3.61) | 0.78 (0.01) | 0.97 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.400 | 500 | 5 | 401 (2.86) | 10 (4.44) | 99 (2.86) | 0.8 (0.01) | 0.98 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) |
| 0.400 | 750 | 1 | 375 (5.55) | 15 (2.7) | 125 (5.55) | 0.75 (0.01) | 0.96 (0.01) | 0.81 (0.01) | 0.83 (0.01) | 0.84 (0.01) |
| 0.400 | 750 | 2 | 394 (4.04) | 19 (3.58) | 106 (4.04) | 0.79 (0.01) | 0.96 (0.01) | 0.84 (0) | 0.85 (0) | 0.86 (0) |
| 0.400 | 750 | 3 | 395 (4.36) | 20 (3.56) | 105 (4.36) | 0.79 (0.01) | 0.95 (0.01) | 0.83 (0) | 0.84 (0) | 0.86 (0) |
| 0.400 | 750 | 4 | 382 (4.1) | 14 (3.11) | 118 (4.1) | 0.76 (0.01) | 0.97 (0.01) | 0.82 (0.01) | 0.83 (0) | 0.85 (0) |
| 0.400 | 750 | 5 | 390 (2.51) | 13 (3.61) | 110 (2.51) | 0.78 (0.01) | 0.97 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.400 | 1000 | 1 | 363 (2) | 15 (2.51) | 137 (2) | 0.73 (0) | 0.96 (0.01) | 0.79 (0) | 0.81 (0.01) | 0.83 (0.01) |
| 0.400 | 1000 | 2 | 394 (5.12) | 17 (2.97) | 106 (5.12) | 0.79 (0.01) | 0.96 (0.01) | 0.84 (0.01) | 0.85 (0.01) | 0.86 (0.01) |
| 0.400 | 1000 | 3 | 402 (3.65) | 22 (3.05) | 98 (3.65) | 0.8 (0.01) | 0.95 (0.01) | 0.85 (0) | 0.85 (0) | 0.87 (0) |
| 0.400 | 1000 | 4 | 397 (3.19) | 20 (3.71) | 103 (3.19) | 0.79 (0.01) | 0.95 (0.01) | 0.84 (0) | 0.85 (0) | 0.87 (0) |
| 0.400 | 1000 | 5 | 387 (2.61) | 16 (2.92) | 113 (2.61) | 0.77 (0.01) | 0.96 (0.01) | 0.82 (0.01) | 0.84 (0) | 0.86 (0) |

## ProbeLasso

This table shows the average performance of the ProbeLasso method at each .

pl\_tab <-  
 probeLassoRes\_df %>%  
 select(delta, seed, adjPval, mLassoRad, minDmrSep,  
 TP, FP, FN, power, precision, AuPR, mcc, F1) %>%   
 filter(delta > 0) %>%   
 group\_by(delta, adjPval, mLassoRad, minDmrSep) %>%  
 summarise(  
 TP = CalcMeanSD(TP, sigFigsMean = 0),  
 FP = CalcMeanSD(FP, sigFigsMean = 0),  
 FN = CalcMeanSD(FN, sigFigsMean = 0),  
 Pwr = CalcMeanSD(power),  
 Precis = CalcMeanSD(precision),  
 AuPR = CalcMeanSD(AuPR),  
 MCC = CalcMeanSD(mcc),  
 F1 = CalcMeanSD(F1)  
 )  
  
# write\_csv(pl\_tab, path = "../resultsData/ProbeLasso\_total\_results.csv")  
pl\_tab %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | adjPval | mLassoRad | minDmrSep | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 |
| 0.025 | 0.001 | 375 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 375 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 375 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 375 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 375 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 700 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 700 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 700 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 700 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 700 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 1000 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 1000 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 1000 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 1000 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.001 | 1000 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 375 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 375 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 375 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 375 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 375 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 700 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 700 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 700 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 700 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 700 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 1000 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 1000 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 1000 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 1000 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.010 | 1000 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 375 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 375 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 375 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 375 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 375 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 700 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 700 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 700 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 700 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 700 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 1000 | 200 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 1000 | 250 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 1000 | 500 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 1000 | 750 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.050 | 1000 | 1000 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) |
| 0.025 | 0.100 | 375 | 200 | 2 (2.07) | 0 (0) | 498 (2.07) | 0 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 375 | 250 | 2 (2.07) | 0 (0) | 498 (2.07) | 0 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 375 | 500 | 2 (2.07) | 0 (0) | 498 (2.07) | 0 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 375 | 750 | 2 (2.07) | 0 (0) | 498 (2.07) | 0 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 375 | 1000 | 2 (2.07) | 0 (0) | 498 (2.07) | 0 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 700 | 200 | 2 (1.64) | 0 (0) | 498 (1.64) | 0 (0) | 1 (0) | 0.17 (0) | 0.06 (0.02) | 0.01 (0) |
| 0.025 | 0.100 | 700 | 250 | 2 (1.64) | 0 (0) | 498 (1.64) | 0 (0) | 1 (0) | 0.17 (0) | 0.06 (0.02) | 0.01 (0) |
| 0.025 | 0.100 | 700 | 500 | 2 (1.64) | 0 (0) | 498 (1.64) | 0 (0) | 1 (0) | 0.17 (0) | 0.06 (0.02) | 0.01 (0) |
| 0.025 | 0.100 | 700 | 750 | 2 (1.64) | 0 (0) | 498 (1.64) | 0 (0) | 1 (0) | 0.17 (0) | 0.06 (0.02) | 0.01 (0) |
| 0.025 | 0.100 | 700 | 1000 | 2 (1.64) | 0 (0) | 498 (1.64) | 0 (0) | 1 (0) | 0.17 (0) | 0.06 (0.02) | 0.01 (0) |
| 0.025 | 0.100 | 1000 | 200 | 3 (2.07) | 0 (0) | 497 (2.07) | 0.01 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 1000 | 250 | 3 (2.07) | 0 (0) | 497 (2.07) | 0.01 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 1000 | 500 | 3 (2.07) | 0 (0) | 497 (2.07) | 0.01 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 1000 | 750 | 3 (2.07) | 0 (0) | 497 (2.07) | 0.01 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.025 | 0.100 | 1000 | 1000 | 3 (2.07) | 0 (0) | 497 (2.07) | 0.01 (0) | 1 (0) | 0.17 (0.01) | 0.07 (0.02) | 0.01 (0.01) |
| 0.050 | 0.001 | 375 | 200 | 36 (6.83) | 3 (1.22) | 464 (6.83) | 0.07 (0.01) | 0.94 (0.03) | 0.25 (0.02) | 0.23 (0.02) | 0.13 (0.02) |
| 0.050 | 0.001 | 375 | 250 | 36 (6.83) | 3 (1.22) | 464 (6.83) | 0.07 (0.01) | 0.94 (0.03) | 0.25 (0.02) | 0.23 (0.02) | 0.13 (0.02) |
| 0.050 | 0.001 | 375 | 500 | 36 (6.83) | 3 (1.22) | 464 (6.83) | 0.07 (0.01) | 0.94 (0.03) | 0.25 (0.02) | 0.23 (0.02) | 0.13 (0.02) |
| 0.050 | 0.001 | 375 | 750 | 36 (6.83) | 3 (1.22) | 464 (6.83) | 0.07 (0.01) | 0.94 (0.03) | 0.25 (0.02) | 0.23 (0.02) | 0.13 (0.02) |
| 0.050 | 0.001 | 375 | 1000 | 36 (6.83) | 3 (1.22) | 464 (6.83) | 0.07 (0.01) | 0.94 (0.03) | 0.25 (0.02) | 0.23 (0.02) | 0.13 (0.02) |
| 0.050 | 0.001 | 700 | 200 | 58 (8.62) | 6 (1.3) | 442 (8.62) | 0.12 (0.02) | 0.93 (0.01) | 0.3 (0.02) | 0.3 (0.02) | 0.2 (0.03) |
| 0.050 | 0.001 | 700 | 250 | 58 (8.62) | 6 (1.3) | 442 (8.62) | 0.12 (0.02) | 0.93 (0.01) | 0.3 (0.02) | 0.3 (0.02) | 0.2 (0.03) |
| 0.050 | 0.001 | 700 | 500 | 58 (8.62) | 6 (1.3) | 442 (8.62) | 0.12 (0.02) | 0.93 (0.01) | 0.3 (0.02) | 0.3 (0.02) | 0.2 (0.03) |
| 0.050 | 0.001 | 700 | 750 | 58 (8.62) | 6 (1.3) | 442 (8.62) | 0.12 (0.02) | 0.93 (0.01) | 0.3 (0.02) | 0.3 (0.02) | 0.2 (0.03) |
| 0.050 | 0.001 | 700 | 1000 | 58 (8.62) | 6 (1.3) | 442 (8.62) | 0.12 (0.02) | 0.93 (0.01) | 0.3 (0.02) | 0.3 (0.02) | 0.2 (0.03) |
| 0.050 | 0.001 | 1000 | 200 | 77 (13.33) | 8 (2.07) | 423 (13.33) | 0.15 (0.03) | 0.93 (0.02) | 0.34 (0.03) | 0.34 (0.04) | 0.26 (0.04) |
| 0.050 | 0.001 | 1000 | 250 | 77 (13.33) | 8 (2.07) | 423 (13.33) | 0.15 (0.03) | 0.93 (0.02) | 0.34 (0.03) | 0.34 (0.04) | 0.26 (0.04) |
| 0.050 | 0.001 | 1000 | 500 | 77 (13.33) | 9 (1.95) | 423 (13.33) | 0.15 (0.03) | 0.93 (0.02) | 0.34 (0.03) | 0.34 (0.04) | 0.26 (0.04) |
| 0.050 | 0.001 | 1000 | 750 | 77 (13.33) | 9 (1.95) | 423 (13.33) | 0.15 (0.03) | 0.93 (0.02) | 0.34 (0.03) | 0.34 (0.04) | 0.26 (0.04) |
| 0.050 | 0.001 | 1000 | 1000 | 77 (13.33) | 9 (1.95) | 423 (13.33) | 0.15 (0.03) | 0.93 (0.02) | 0.34 (0.03) | 0.34 (0.04) | 0.26 (0.04) |
| 0.050 | 0.010 | 375 | 200 | 84 (8.6) | 4 (1.82) | 416 (8.6) | 0.17 (0.02) | 0.96 (0.02) | 0.35 (0.02) | 0.36 (0.02) | 0.28 (0.03) |
| 0.050 | 0.010 | 375 | 250 | 84 (8.6) | 4 (1.82) | 416 (8.6) | 0.17 (0.02) | 0.96 (0.02) | 0.35 (0.02) | 0.36 (0.02) | 0.28 (0.03) |
| 0.050 | 0.010 | 375 | 500 | 85 (8.47) | 4 (1.82) | 415 (8.47) | 0.17 (0.02) | 0.96 (0.02) | 0.35 (0.02) | 0.37 (0.02) | 0.28 (0.03) |
| 0.050 | 0.010 | 375 | 750 | 85 (8.47) | 4 (1.82) | 415 (8.47) | 0.17 (0.02) | 0.96 (0.02) | 0.35 (0.02) | 0.37 (0.02) | 0.28 (0.02) |
| 0.050 | 0.010 | 375 | 1000 | 85 (8.17) | 4 (1.82) | 415 (8.17) | 0.17 (0.02) | 0.96 (0.02) | 0.35 (0.02) | 0.36 (0.02) | 0.28 (0.02) |
| 0.050 | 0.010 | 700 | 200 | 125 (9.3) | 10 (2.07) | 375 (9.3) | 0.25 (0.02) | 0.94 (0.02) | 0.43 (0.02) | 0.44 (0.02) | 0.39 (0.02) |
| 0.050 | 0.010 | 700 | 250 | 125 (9.3) | 10 (2.07) | 375 (9.3) | 0.25 (0.02) | 0.94 (0.02) | 0.43 (0.02) | 0.44 (0.02) | 0.39 (0.02) |
| 0.050 | 0.010 | 700 | 500 | 125 (9.3) | 10 (2.28) | 375 (9.3) | 0.25 (0.02) | 0.94 (0.02) | 0.43 (0.02) | 0.44 (0.02) | 0.39 (0.02) |
| 0.050 | 0.010 | 700 | 750 | 125 (9.3) | 10 (2.28) | 375 (9.3) | 0.25 (0.02) | 0.94 (0.02) | 0.43 (0.02) | 0.44 (0.02) | 0.39 (0.02) |
| 0.050 | 0.010 | 700 | 1000 | 125 (9.3) | 10 (2.28) | 375 (9.3) | 0.25 (0.02) | 0.94 (0.02) | 0.43 (0.02) | 0.44 (0.02) | 0.39 (0.02) |
| 0.050 | 0.010 | 1000 | 200 | 156 (10.11) | 17 (4.83) | 344 (10.11) | 0.31 (0.02) | 0.92 (0.01) | 0.48 (0.02) | 0.49 (0.02) | 0.46 (0.02) |
| 0.050 | 0.010 | 1000 | 250 | 156 (10.11) | 17 (4.83) | 344 (10.11) | 0.31 (0.02) | 0.92 (0.01) | 0.48 (0.02) | 0.49 (0.02) | 0.46 (0.02) |
| 0.050 | 0.010 | 1000 | 500 | 157 (10.33) | 18 (4.72) | 343 (10.33) | 0.31 (0.02) | 0.92 (0.01) | 0.48 (0.02) | 0.49 (0.02) | 0.46 (0.02) |
| 0.050 | 0.010 | 1000 | 750 | 157 (10.33) | 18 (4.72) | 343 (10.33) | 0.31 (0.02) | 0.92 (0.01) | 0.48 (0.02) | 0.49 (0.02) | 0.46 (0.02) |
| 0.050 | 0.010 | 1000 | 1000 | 157 (10.33) | 18 (4.72) | 343 (10.33) | 0.31 (0.02) | 0.92 (0.01) | 0.48 (0.02) | 0.49 (0.02) | 0.46 (0.02) |
| 0.050 | 0.050 | 375 | 200 | 116 (10.28) | 5 (2.45) | 384 (10.28) | 0.23 (0.02) | 0.96 (0.02) | 0.41 (0.02) | 0.43 (0.02) | 0.37 (0.02) |
| 0.050 | 0.050 | 375 | 250 | 116 (10.28) | 5 (2.45) | 384 (10.28) | 0.23 (0.02) | 0.96 (0.02) | 0.41 (0.02) | 0.43 (0.02) | 0.37 (0.02) |
| 0.050 | 0.050 | 375 | 500 | 116 (10.28) | 5 (2.45) | 384 (10.28) | 0.23 (0.02) | 0.96 (0.02) | 0.41 (0.02) | 0.43 (0.02) | 0.37 (0.03) |
| 0.050 | 0.050 | 375 | 750 | 116 (10.28) | 5 (2.45) | 384 (10.28) | 0.23 (0.02) | 0.96 (0.02) | 0.41 (0.02) | 0.43 (0.02) | 0.37 (0.03) |
| 0.050 | 0.050 | 375 | 1000 | 116 (10.02) | 5 (2.45) | 384 (10.02) | 0.23 (0.02) | 0.96 (0.02) | 0.41 (0.02) | 0.43 (0.02) | 0.37 (0.02) |
| 0.050 | 0.050 | 700 | 200 | 172 (8.5) | 11 (3.29) | 328 (8.5) | 0.34 (0.02) | 0.95 (0.02) | 0.51 (0.02) | 0.53 (0.02) | 0.5 (0.02) |
| 0.050 | 0.050 | 700 | 250 | 172 (8.5) | 11 (3.29) | 328 (8.5) | 0.34 (0.02) | 0.95 (0.02) | 0.51 (0.02) | 0.53 (0.02) | 0.5 (0.02) |
| 0.050 | 0.050 | 700 | 500 | 172 (8.5) | 12 (3.29) | 328 (8.5) | 0.34 (0.02) | 0.95 (0.02) | 0.51 (0.02) | 0.53 (0.02) | 0.5 (0.02) |
| 0.050 | 0.050 | 700 | 750 | 172 (8.5) | 12 (3.29) | 328 (8.5) | 0.34 (0.02) | 0.95 (0.02) | 0.51 (0.02) | 0.53 (0.02) | 0.5 (0.02) |
| 0.050 | 0.050 | 700 | 1000 | 172 (8.5) | 12 (3.27) | 328 (8.5) | 0.34 (0.02) | 0.95 (0.02) | 0.51 (0.02) | 0.53 (0.02) | 0.5 (0.02) |
| 0.050 | 0.050 | 1000 | 200 | 211 (10.6) | 20 (4.97) | 289 (10.6) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.58 (0.02) |
| 0.050 | 0.050 | 1000 | 250 | 211 (10.6) | 20 (4.97) | 289 (10.6) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) |
| 0.050 | 0.050 | 1000 | 500 | 212 (10.92) | 21 (5.03) | 288 (10.92) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) |
| 0.050 | 0.050 | 1000 | 750 | 212 (10.92) | 21 (5.03) | 288 (10.92) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) |
| 0.050 | 0.050 | 1000 | 1000 | 212 (10.92) | 21 (5.03) | 288 (10.92) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) |
| 0.050 | 0.100 | 375 | 200 | 131 (7.38) | 6 (2.7) | 369 (7.38) | 0.26 (0.01) | 0.96 (0.02) | 0.44 (0.01) | 0.46 (0.01) | 0.41 (0.02) |
| 0.050 | 0.100 | 375 | 250 | 131 (7.38) | 6 (2.7) | 369 (7.38) | 0.26 (0.01) | 0.96 (0.02) | 0.44 (0.01) | 0.46 (0.01) | 0.41 (0.02) |
| 0.050 | 0.100 | 375 | 500 | 131 (7.38) | 6 (2.7) | 369 (7.38) | 0.26 (0.01) | 0.96 (0.02) | 0.44 (0.01) | 0.46 (0.01) | 0.41 (0.02) |
| 0.050 | 0.100 | 375 | 750 | 131 (7.38) | 6 (2.7) | 369 (7.38) | 0.26 (0.01) | 0.96 (0.02) | 0.44 (0.01) | 0.46 (0.01) | 0.41 (0.02) |
| 0.050 | 0.100 | 375 | 1000 | 131 (7.12) | 6 (2.7) | 369 (7.12) | 0.26 (0.01) | 0.96 (0.02) | 0.44 (0.01) | 0.46 (0.01) | 0.41 (0.02) |
| 0.050 | 0.100 | 700 | 200 | 196 (10.01) | 13 (3.67) | 304 (10.01) | 0.39 (0.02) | 0.95 (0.02) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.02) |
| 0.050 | 0.100 | 700 | 250 | 196 (10.01) | 13 (3.67) | 304 (10.01) | 0.39 (0.02) | 0.95 (0.02) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.02) |
| 0.050 | 0.100 | 700 | 500 | 196 (10.01) | 13 (3.56) | 304 (10.01) | 0.39 (0.02) | 0.95 (0.02) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.02) |
| 0.050 | 0.100 | 700 | 750 | 197 (10.01) | 13 (3.56) | 303 (10.01) | 0.39 (0.02) | 0.95 (0.02) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.02) |
| 0.050 | 0.100 | 700 | 1000 | 197 (10.01) | 13 (3.65) | 303 (10.01) | 0.39 (0.02) | 0.95 (0.02) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.02) |
| 0.050 | 0.100 | 1000 | 200 | 238 (11.69) | 23 (5.76) | 262 (11.69) | 0.48 (0.02) | 0.93 (0.01) | 0.61 (0.02) | 0.62 (0.02) | 0.62 (0.02) |
| 0.050 | 0.100 | 1000 | 250 | 238 (11.69) | 23 (5.76) | 262 (11.69) | 0.48 (0.02) | 0.93 (0.01) | 0.61 (0.02) | 0.62 (0.02) | 0.62 (0.02) |
| 0.050 | 0.100 | 1000 | 500 | 238 (11.94) | 23 (5.89) | 262 (11.94) | 0.48 (0.02) | 0.93 (0.01) | 0.61 (0.02) | 0.62 (0.02) | 0.62 (0.02) |
| 0.050 | 0.100 | 1000 | 750 | 238 (11.94) | 23 (5.89) | 262 (11.94) | 0.48 (0.02) | 0.93 (0.01) | 0.61 (0.02) | 0.62 (0.02) | 0.62 (0.02) |
| 0.050 | 0.100 | 1000 | 1000 | 238 (11.94) | 23 (5.89) | 262 (11.94) | 0.48 (0.02) | 0.93 (0.01) | 0.61 (0.02) | 0.62 (0.02) | 0.62 (0.02) |
| 0.100 | 0.001 | 375 | 200 | 150 (7.18) | 7 (2.86) | 350 (7.18) | 0.3 (0.01) | 0.96 (0.02) | 0.47 (0.01) | 0.5 (0.01) | 0.45 (0.01) |
| 0.100 | 0.001 | 375 | 250 | 150 (7.18) | 7 (2.86) | 350 (7.18) | 0.3 (0.01) | 0.96 (0.02) | 0.47 (0.01) | 0.5 (0.01) | 0.45 (0.01) |
| 0.100 | 0.001 | 375 | 500 | 150 (7.18) | 7 (2.86) | 350 (7.18) | 0.3 (0.01) | 0.96 (0.02) | 0.47 (0.01) | 0.5 (0.01) | 0.45 (0.02) |
| 0.100 | 0.001 | 375 | 750 | 150 (7.18) | 7 (2.86) | 350 (7.18) | 0.3 (0.01) | 0.96 (0.02) | 0.47 (0.01) | 0.5 (0.01) | 0.45 (0.02) |
| 0.100 | 0.001 | 375 | 1000 | 150 (7.18) | 7 (2.86) | 350 (7.18) | 0.3 (0.01) | 0.96 (0.02) | 0.47 (0.01) | 0.49 (0.01) | 0.45 (0.02) |
| 0.100 | 0.001 | 700 | 200 | 217 (8.47) | 15 (3.78) | 283 (8.47) | 0.43 (0.02) | 0.95 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.59 (0.02) |
| 0.100 | 0.001 | 700 | 250 | 217 (8.47) | 15 (3.78) | 283 (8.47) | 0.43 (0.02) | 0.95 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.59 (0.02) |
| 0.100 | 0.001 | 700 | 500 | 217 (8.03) | 15 (3.67) | 283 (8.03) | 0.43 (0.02) | 0.94 (0.01) | 0.58 (0.01) | 0.6 (0.02) | 0.59 (0.02) |
| 0.100 | 0.001 | 700 | 750 | 217 (8.14) | 15 (3.67) | 283 (8.14) | 0.43 (0.02) | 0.95 (0.01) | 0.58 (0.01) | 0.6 (0.02) | 0.59 (0.02) |
| 0.100 | 0.001 | 700 | 1000 | 217 (8.14) | 15 (3.36) | 283 (8.14) | 0.43 (0.02) | 0.94 (0.01) | 0.58 (0.01) | 0.6 (0.02) | 0.59 (0.02) |
| 0.100 | 0.001 | 1000 | 200 | 266 (8.5) | 28 (5.81) | 234 (8.5) | 0.53 (0.02) | 0.92 (0.01) | 0.65 (0.01) | 0.66 (0.01) | 0.67 (0.01) |
| 0.100 | 0.001 | 1000 | 250 | 266 (8.5) | 28 (5.81) | 234 (8.5) | 0.53 (0.02) | 0.92 (0.01) | 0.65 (0.01) | 0.66 (0.01) | 0.67 (0.01) |
| 0.100 | 0.001 | 1000 | 500 | 266 (8.88) | 28 (5.72) | 234 (8.88) | 0.53 (0.02) | 0.92 (0.01) | 0.65 (0.01) | 0.66 (0.01) | 0.67 (0.01) |
| 0.100 | 0.001 | 1000 | 750 | 266 (8.88) | 28 (5.68) | 234 (8.88) | 0.53 (0.02) | 0.92 (0.01) | 0.65 (0.01) | 0.66 (0.01) | 0.67 (0.01) |
| 0.100 | 0.001 | 1000 | 1000 | 266 (8.79) | 28 (5.68) | 234 (8.79) | 0.53 (0.02) | 0.92 (0.01) | 0.65 (0.01) | 0.66 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 375 | 200 | 180 (9.15) | 7 (2.97) | 320 (9.15) | 0.36 (0.02) | 0.96 (0.01) | 0.53 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.100 | 0.010 | 375 | 250 | 180 (9.15) | 7 (2.97) | 320 (9.15) | 0.36 (0.02) | 0.96 (0.01) | 0.53 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.100 | 0.010 | 375 | 500 | 180 (9.15) | 7 (2.97) | 320 (9.15) | 0.36 (0.02) | 0.96 (0.01) | 0.53 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.100 | 0.010 | 375 | 750 | 180 (9.15) | 7 (2.97) | 320 (9.15) | 0.36 (0.02) | 0.96 (0.01) | 0.53 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.100 | 0.010 | 375 | 1000 | 181 (9.39) | 8 (3.05) | 319 (9.39) | 0.36 (0.02) | 0.96 (0.01) | 0.53 (0.01) | 0.55 (0.01) | 0.52 (0.02) |
| 0.100 | 0.010 | 700 | 200 | 264 (4.39) | 19 (2.51) | 236 (4.39) | 0.53 (0.01) | 0.95 (0.01) | 0.65 (0.01) | 0.67 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 700 | 250 | 264 (4.39) | 19 (2.51) | 236 (4.39) | 0.53 (0.01) | 0.95 (0.01) | 0.65 (0.01) | 0.67 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 700 | 500 | 265 (4.16) | 19 (2.39) | 235 (4.16) | 0.53 (0.01) | 0.94 (0.01) | 0.65 (0.01) | 0.67 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 700 | 750 | 265 (3.87) | 19 (2.39) | 235 (3.87) | 0.53 (0.01) | 0.94 (0.01) | 0.65 (0.01) | 0.67 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 700 | 1000 | 265 (3.87) | 19 (2.17) | 235 (3.87) | 0.53 (0.01) | 0.94 (0.01) | 0.65 (0.01) | 0.67 (0.01) | 0.67 (0.01) |
| 0.100 | 0.010 | 1000 | 200 | 322 (8.96) | 32 (6.69) | 178 (8.96) | 0.64 (0.02) | 0.93 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.100 | 0.010 | 1000 | 250 | 322 (8.96) | 32 (6.69) | 178 (8.96) | 0.64 (0.02) | 0.93 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.100 | 0.010 | 1000 | 500 | 323 (9.03) | 32 (6.53) | 177 (9.03) | 0.65 (0.02) | 0.93 (0.01) | 0.74 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.100 | 0.010 | 1000 | 750 | 323 (9.03) | 32 (6.54) | 177 (9.03) | 0.65 (0.02) | 0.93 (0.01) | 0.74 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.100 | 0.010 | 1000 | 1000 | 323 (9.28) | 32 (6.54) | 177 (9.28) | 0.65 (0.02) | 0.93 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.100 | 0.050 | 375 | 200 | 205 (9.94) | 9 (3.29) | 295 (9.94) | 0.41 (0.02) | 0.96 (0.01) | 0.57 (0.01) | 0.59 (0.01) | 0.57 (0.02) |
| 0.100 | 0.050 | 375 | 250 | 205 (9.94) | 9 (3.29) | 295 (9.94) | 0.41 (0.02) | 0.96 (0.01) | 0.57 (0.01) | 0.59 (0.01) | 0.57 (0.02) |
| 0.100 | 0.050 | 375 | 500 | 205 (10.31) | 9 (3.29) | 295 (10.31) | 0.41 (0.02) | 0.96 (0.01) | 0.57 (0.01) | 0.59 (0.01) | 0.57 (0.02) |
| 0.100 | 0.050 | 375 | 750 | 205 (10.31) | 9 (3.29) | 295 (10.31) | 0.41 (0.02) | 0.96 (0.01) | 0.57 (0.01) | 0.59 (0.01) | 0.57 (0.02) |
| 0.100 | 0.050 | 375 | 1000 | 206 (10.81) | 9 (3.35) | 294 (10.81) | 0.41 (0.02) | 0.96 (0.01) | 0.57 (0.02) | 0.59 (0.01) | 0.57 (0.02) |
| 0.100 | 0.050 | 700 | 200 | 298 (2.97) | 21 (3.11) | 202 (2.97) | 0.6 (0.01) | 0.94 (0.01) | 0.7 (0.01) | 0.71 (0.01) | 0.73 (0.01) |
| 0.100 | 0.050 | 700 | 250 | 298 (2.97) | 21 (3.11) | 202 (2.97) | 0.6 (0.01) | 0.94 (0.01) | 0.7 (0.01) | 0.71 (0.01) | 0.73 (0.01) |
| 0.100 | 0.050 | 700 | 500 | 299 (3.21) | 21 (2.92) | 201 (3.21) | 0.6 (0.01) | 0.94 (0.01) | 0.7 (0.01) | 0.71 (0.01) | 0.73 (0.01) |
| 0.100 | 0.050 | 700 | 750 | 299 (2.83) | 21 (2.92) | 201 (2.83) | 0.6 (0.01) | 0.94 (0.01) | 0.7 (0.01) | 0.71 (0.01) | 0.73 (0) |
| 0.100 | 0.050 | 700 | 1000 | 299 (3.03) | 21 (2.79) | 201 (3.03) | 0.6 (0.01) | 0.94 (0.01) | 0.7 (0.01) | 0.71 (0.01) | 0.73 (0) |
| 0.100 | 0.050 | 1000 | 200 | 361 (6.82) | 35 (7.46) | 139 (6.82) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.100 | 0.050 | 1000 | 250 | 361 (6.82) | 35 (7.46) | 139 (6.82) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.100 | 0.050 | 1000 | 500 | 362 (7.02) | 36 (7.37) | 138 (7.02) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.100 | 0.050 | 1000 | 750 | 362 (6.87) | 36 (7.36) | 138 (6.87) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.100 | 0.050 | 1000 | 1000 | 362 (7.02) | 36 (7.36) | 138 (7.02) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) |
| 0.100 | 0.100 | 375 | 200 | 212 (8.53) | 10 (3.78) | 288 (8.53) | 0.42 (0.02) | 0.96 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.58 (0.01) |
| 0.100 | 0.100 | 375 | 250 | 212 (8.53) | 10 (3.78) | 288 (8.53) | 0.42 (0.02) | 0.96 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.58 (0.01) |
| 0.100 | 0.100 | 375 | 500 | 213 (8.93) | 10 (3.78) | 287 (8.93) | 0.43 (0.02) | 0.96 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.58 (0.02) |
| 0.100 | 0.100 | 375 | 750 | 213 (8.93) | 10 (3.78) | 287 (8.93) | 0.43 (0.02) | 0.96 (0.01) | 0.58 (0.01) | 0.6 (0.01) | 0.58 (0.01) |
| 0.100 | 0.100 | 375 | 1000 | 214 (9.29) | 10 (3.9) | 286 (9.29) | 0.43 (0.02) | 0.96 (0.02) | 0.58 (0.01) | 0.6 (0.01) | 0.58 (0.02) |
| 0.100 | 0.100 | 700 | 200 | 309 (4.66) | 21 (3.11) | 191 (4.66) | 0.62 (0.01) | 0.95 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 0.74 (0.01) |
| 0.100 | 0.100 | 700 | 250 | 309 (4.66) | 21 (3.11) | 191 (4.66) | 0.62 (0.01) | 0.95 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 0.74 (0.01) |
| 0.100 | 0.100 | 700 | 500 | 309 (4.66) | 21 (2.92) | 191 (4.66) | 0.62 (0.01) | 0.95 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 0.74 (0.01) |
| 0.100 | 0.100 | 700 | 750 | 309 (4.38) | 21 (2.92) | 191 (4.38) | 0.62 (0.01) | 0.95 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 0.74 (0.01) |
| 0.100 | 0.100 | 700 | 1000 | 309 (4.64) | 21 (2.79) | 191 (4.64) | 0.62 (0.01) | 0.94 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 0.74 (0.01) |
| 0.100 | 0.100 | 1000 | 200 | 373 (4.72) | 35 (7.86) | 127 (4.72) | 0.75 (0.01) | 0.93 (0.01) | 0.8 (0.01) | 0.8 (0) | 0.82 (0) |
| 0.100 | 0.100 | 1000 | 250 | 373 (4.72) | 35 (7.86) | 127 (4.72) | 0.75 (0.01) | 0.93 (0.01) | 0.8 (0.01) | 0.8 (0) | 0.82 (0) |
| 0.100 | 0.100 | 1000 | 500 | 373 (5.1) | 36 (7.79) | 127 (5.1) | 0.75 (0.01) | 0.93 (0.01) | 0.8 (0.01) | 0.8 (0) | 0.82 (0) |
| 0.100 | 0.100 | 1000 | 750 | 373 (5.07) | 36 (7.81) | 127 (5.07) | 0.75 (0.01) | 0.93 (0.01) | 0.8 (0.01) | 0.8 (0) | 0.82 (0) |
| 0.100 | 0.100 | 1000 | 1000 | 373 (5.1) | 36 (7.81) | 127 (5.1) | 0.75 (0.01) | 0.93 (0.01) | 0.8 (0.01) | 0.8 (0) | 0.82 (0) |
| 0.150 | 0.001 | 375 | 200 | 200 (9.64) | 8 (3.29) | 300 (9.64) | 0.4 (0.02) | 0.96 (0.01) | 0.56 (0.01) | 0.58 (0.01) | 0.56 (0.02) |
| 0.150 | 0.001 | 375 | 250 | 200 (9.64) | 8 (3.29) | 300 (9.64) | 0.4 (0.02) | 0.96 (0.01) | 0.56 (0.01) | 0.58 (0.01) | 0.56 (0.02) |
| 0.150 | 0.001 | 375 | 500 | 200 (9.98) | 8 (3.29) | 300 (9.98) | 0.4 (0.02) | 0.96 (0.01) | 0.56 (0.01) | 0.58 (0.01) | 0.56 (0.02) |
| 0.150 | 0.001 | 375 | 750 | 200 (9.98) | 8 (3.29) | 300 (9.98) | 0.4 (0.02) | 0.96 (0.01) | 0.56 (0.01) | 0.58 (0.01) | 0.56 (0.02) |
| 0.150 | 0.001 | 375 | 1000 | 201 (10.32) | 9 (3.36) | 299 (10.32) | 0.4 (0.02) | 0.96 (0.01) | 0.56 (0.01) | 0.58 (0.01) | 0.56 (0.02) |
| 0.150 | 0.001 | 700 | 200 | 289 (3.97) | 21 (2) | 211 (3.97) | 0.58 (0.01) | 0.94 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 0.001 | 700 | 250 | 289 (3.97) | 21 (2) | 211 (3.97) | 0.58 (0.01) | 0.94 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 0.001 | 700 | 500 | 290 (4.04) | 21 (2.17) | 210 (4.04) | 0.58 (0.01) | 0.94 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 0.001 | 700 | 750 | 290 (3.67) | 21 (2.17) | 210 (3.67) | 0.58 (0.01) | 0.94 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 0.001 | 700 | 1000 | 290 (3.83) | 22 (1.95) | 210 (3.83) | 0.58 (0.01) | 0.94 (0.01) | 0.69 (0.01) | 0.7 (0.01) | 0.71 (0.01) |
| 0.150 | 0.001 | 1000 | 200 | 355 (7.95) | 38 (7.84) | 145 (7.95) | 0.71 (0.02) | 0.92 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 0.001 | 1000 | 250 | 355 (7.95) | 38 (7.84) | 145 (7.95) | 0.71 (0.02) | 0.92 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 0.001 | 1000 | 500 | 355 (8.32) | 38 (7.7) | 145 (8.32) | 0.71 (0.02) | 0.92 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 0.001 | 1000 | 750 | 355 (8.32) | 39 (7.89) | 145 (8.32) | 0.71 (0.02) | 0.92 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 0.001 | 1000 | 1000 | 355 (8.41) | 39 (7.89) | 145 (8.41) | 0.71 (0.02) | 0.92 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.150 | 0.010 | 375 | 200 | 218 (7.89) | 9 (3.7) | 282 (7.89) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.150 | 0.010 | 375 | 250 | 218 (7.89) | 9 (3.7) | 282 (7.89) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.150 | 0.010 | 375 | 500 | 219 (8) | 9 (3.7) | 281 (8) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.150 | 0.010 | 375 | 750 | 219 (8) | 9 (3.7) | 281 (8) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.150 | 0.010 | 375 | 1000 | 220 (8.44) | 9 (3.78) | 280 (8.44) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.150 | 0.010 | 700 | 200 | 319 (5.24) | 21 (2.19) | 181 (5.24) | 0.64 (0.01) | 0.95 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 0.010 | 700 | 250 | 319 (5.24) | 21 (2.19) | 181 (5.24) | 0.64 (0.01) | 0.95 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 0.010 | 700 | 500 | 319 (5.24) | 22 (2.3) | 181 (5.24) | 0.64 (0.01) | 0.95 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 0.010 | 700 | 750 | 319 (5.03) | 22 (2.3) | 181 (5.03) | 0.64 (0.01) | 0.95 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 0.010 | 700 | 1000 | 319 (5.36) | 22 (2) | 181 (5.36) | 0.64 (0.01) | 0.95 (0.01) | 0.73 (0.01) | 0.74 (0.01) | 0.76 (0.01) |
| 0.150 | 0.010 | 1000 | 200 | 389 (5.39) | 39 (7.5) | 111 (5.39) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 0.010 | 1000 | 250 | 389 (5.39) | 39 (7.5) | 111 (5.39) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 0.010 | 1000 | 500 | 389 (5.86) | 39 (7.35) | 111 (5.86) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 0.010 | 1000 | 750 | 389 (5.86) | 39 (7.56) | 111 (5.86) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 0.010 | 1000 | 1000 | 389 (5.72) | 39 (7.56) | 111 (5.72) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.84 (0.01) |
| 0.150 | 0.050 | 375 | 200 | 229 (8.76) | 9 (3.7) | 271 (8.76) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.050 | 375 | 250 | 229 (8.76) | 9 (3.7) | 271 (8.76) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.050 | 375 | 500 | 230 (9.25) | 9 (3.7) | 270 (9.25) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.050 | 375 | 750 | 230 (9.25) | 9 (3.7) | 270 (9.25) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.050 | 375 | 1000 | 231 (9.68) | 9 (3.78) | 269 (9.68) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.150 | 0.050 | 700 | 200 | 332 (6.88) | 22 (2.35) | 168 (6.88) | 0.66 (0.01) | 0.95 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.150 | 0.050 | 700 | 250 | 332 (6.88) | 22 (2.35) | 168 (6.88) | 0.66 (0.01) | 0.95 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.150 | 0.050 | 700 | 500 | 333 (6.46) | 22 (2.39) | 167 (6.46) | 0.67 (0.01) | 0.95 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.150 | 0.050 | 700 | 750 | 334 (5.63) | 22 (2.39) | 166 (5.63) | 0.67 (0.01) | 0.95 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.150 | 0.050 | 700 | 1000 | 334 (5.86) | 23 (2.19) | 166 (5.86) | 0.67 (0.01) | 0.95 (0.01) | 0.75 (0.01) | 0.76 (0.01) | 0.78 (0.01) |
| 0.150 | 0.050 | 1000 | 200 | 404 (7.44) | 40 (8.47) | 96 (7.44) | 0.81 (0.01) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.150 | 0.050 | 1000 | 250 | 405 (7.09) | 40 (8.47) | 95 (7.09) | 0.81 (0.01) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.150 | 0.050 | 1000 | 500 | 405 (7.8) | 40 (8.31) | 95 (7.8) | 0.81 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.150 | 0.050 | 1000 | 750 | 406 (7.79) | 40 (8.53) | 94 (7.79) | 0.81 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.150 | 0.050 | 1000 | 1000 | 406 (7.6) | 40 (8.53) | 94 (7.6) | 0.81 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) |
| 0.150 | 0.100 | 375 | 200 | 230 (8.41) | 11 (3.96) | 270 (8.41) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.62 (0.01) | 0.62 (0.01) |
| 0.150 | 0.100 | 375 | 250 | 231 (8.29) | 11 (3.96) | 269 (8.29) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.62 (0.01) | 0.62 (0.01) |
| 0.150 | 0.100 | 375 | 500 | 231 (8.73) | 11 (3.96) | 269 (8.73) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.100 | 375 | 750 | 232 (8.96) | 11 (3.96) | 268 (8.96) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.150 | 0.100 | 375 | 1000 | 233 (9.48) | 11 (4.06) | 267 (9.48) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.150 | 0.100 | 700 | 200 | 336 (6.22) | 22 (2.35) | 164 (6.22) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.150 | 0.100 | 700 | 250 | 336 (6.22) | 22 (2.35) | 164 (6.22) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.150 | 0.100 | 700 | 500 | 337 (5.9) | 22 (2.39) | 163 (5.9) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.150 | 0.100 | 700 | 750 | 337 (5.4) | 22 (2.39) | 163 (5.4) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.150 | 0.100 | 700 | 1000 | 337 (5.7) | 23 (2.19) | 163 (5.7) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.150 | 0.100 | 1000 | 200 | 409 (7.83) | 40 (8.58) | 91 (7.83) | 0.82 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.150 | 0.100 | 1000 | 250 | 409 (7.5) | 40 (8.58) | 91 (7.5) | 0.82 (0.01) | 0.93 (0.01) | 0.85 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.150 | 0.100 | 1000 | 500 | 410 (8.29) | 40 (8.44) | 90 (8.29) | 0.82 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.150 | 0.100 | 1000 | 750 | 410 (8.25) | 40 (8.65) | 90 (8.25) | 0.82 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.150 | 0.100 | 1000 | 1000 | 410 (8.11) | 40 (8.65) | 90 (8.11) | 0.82 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.001 | 375 | 200 | 220 (8.38) | 9 (3.7) | 280 (8.38) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.200 | 0.001 | 375 | 250 | 220 (8.38) | 9 (3.7) | 280 (8.38) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.200 | 0.001 | 375 | 500 | 221 (8.51) | 9 (3.7) | 279 (8.51) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.200 | 0.001 | 375 | 750 | 221 (8.51) | 9 (3.7) | 279 (8.51) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.200 | 0.001 | 375 | 1000 | 222 (8.93) | 9 (3.78) | 278 (8.93) | 0.44 (0.02) | 0.96 (0.01) | 0.59 (0.01) | 0.61 (0.01) | 0.6 (0.01) |
| 0.200 | 0.001 | 700 | 200 | 322 (5.94) | 22 (2.07) | 178 (5.94) | 0.64 (0.01) | 0.95 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.200 | 0.001 | 700 | 250 | 322 (5.94) | 22 (2.07) | 178 (5.94) | 0.64 (0.01) | 0.95 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.200 | 0.001 | 700 | 500 | 322 (5.52) | 22 (2.17) | 178 (5.52) | 0.64 (0.01) | 0.95 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.200 | 0.001 | 700 | 750 | 322 (5.37) | 22 (2.17) | 178 (5.37) | 0.64 (0.01) | 0.95 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.200 | 0.001 | 700 | 1000 | 322 (5.72) | 22 (1.92) | 178 (5.72) | 0.64 (0.01) | 0.95 (0.01) | 0.74 (0.01) | 0.75 (0.01) | 0.76 (0.01) |
| 0.200 | 0.001 | 1000 | 200 | 393 (6.91) | 39 (6.96) | 107 (6.91) | 0.79 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 0.001 | 1000 | 250 | 393 (6.91) | 39 (6.96) | 107 (6.91) | 0.79 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 0.001 | 1000 | 500 | 393 (7.28) | 39 (6.84) | 107 (7.28) | 0.79 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 0.001 | 1000 | 750 | 393 (7.28) | 40 (7.06) | 107 (7.28) | 0.79 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.83 (0.01) | 0.85 (0.01) |
| 0.200 | 0.001 | 1000 | 1000 | 392 (7.44) | 40 (7.06) | 108 (7.44) | 0.78 (0.01) | 0.93 (0.01) | 0.83 (0.01) | 0.82 (0.01) | 0.85 (0.01) |
| 0.200 | 0.010 | 375 | 200 | 230 (8.41) | 9 (3.7) | 270 (8.41) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.200 | 0.010 | 375 | 250 | 230 (8.41) | 9 (3.7) | 270 (8.41) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.200 | 0.010 | 375 | 500 | 231 (8.88) | 9 (3.7) | 269 (8.88) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.200 | 0.010 | 375 | 750 | 231 (9.03) | 9 (3.7) | 269 (9.03) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.01) |
| 0.200 | 0.010 | 375 | 1000 | 232 (9.42) | 9 (3.78) | 268 (9.42) | 0.46 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.200 | 0.010 | 700 | 200 | 336 (5.94) | 22 (1.92) | 164 (5.94) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.200 | 0.010 | 700 | 250 | 336 (5.94) | 22 (1.92) | 164 (5.94) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.200 | 0.010 | 700 | 500 | 337 (5.54) | 22 (2) | 163 (5.54) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.200 | 0.010 | 700 | 750 | 337 (5.03) | 22 (2) | 163 (5.03) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.200 | 0.010 | 700 | 1000 | 337 (5.36) | 22 (1.82) | 163 (5.36) | 0.67 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.78 (0.01) |
| 0.200 | 0.010 | 1000 | 200 | 410 (7.8) | 40 (6.87) | 90 (7.8) | 0.82 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.010 | 1000 | 250 | 410 (7.43) | 40 (6.87) | 90 (7.43) | 0.82 (0.01) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.010 | 1000 | 500 | 411 (8.2) | 40 (6.69) | 89 (8.2) | 0.82 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.010 | 1000 | 750 | 411 (8.15) | 40 (6.91) | 89 (8.15) | 0.82 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.010 | 1000 | 1000 | 410 (8.35) | 40 (6.91) | 90 (8.35) | 0.82 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.050 | 375 | 200 | 235 (9.58) | 10 (3.54) | 265 (9.58) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.050 | 375 | 250 | 235 (9.48) | 10 (3.54) | 265 (9.48) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.050 | 375 | 500 | 236 (9.88) | 10 (3.54) | 264 (9.88) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.050 | 375 | 750 | 237 (10.06) | 10 (3.54) | 263 (10.06) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.050 | 375 | 1000 | 237 (10.5) | 10 (3.63) | 263 (10.5) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.050 | 700 | 200 | 344 (6.58) | 22 (2.19) | 156 (6.58) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 0.050 | 700 | 250 | 344 (6.58) | 22 (2.19) | 156 (6.58) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 0.050 | 700 | 500 | 344 (6.16) | 23 (2.19) | 156 (6.16) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 0.050 | 700 | 750 | 345 (5.64) | 23 (2.19) | 155 (5.64) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 0.050 | 700 | 1000 | 344 (5.94) | 23 (2.12) | 156 (5.94) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.79 (0.01) |
| 0.200 | 0.050 | 1000 | 200 | 415 (8.29) | 40 (7.4) | 85 (8.29) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.050 | 1000 | 250 | 415 (8.29) | 40 (7.4) | 85 (8.29) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.050 | 1000 | 500 | 415 (9.1) | 41 (7.22) | 85 (9.1) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.050 | 1000 | 750 | 416 (9.01) | 41 (7.45) | 84 (9.01) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.88 (0.01) |
| 0.200 | 0.050 | 1000 | 1000 | 415 (9.31) | 41 (7.45) | 85 (9.31) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.87 (0.01) |
| 0.200 | 0.100 | 375 | 200 | 236 (9.48) | 11 (3.54) | 264 (9.48) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.100 | 375 | 250 | 236 (9.36) | 11 (3.54) | 264 (9.36) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.100 | 375 | 500 | 237 (9.79) | 11 (3.54) | 263 (9.79) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.100 | 375 | 750 | 237 (9.95) | 11 (3.54) | 263 (9.95) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.100 | 375 | 1000 | 238 (10.35) | 11 (3.63) | 262 (10.35) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.200 | 0.100 | 700 | 200 | 345 (7.56) | 22 (2.28) | 155 (7.56) | 0.69 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.200 | 0.100 | 700 | 250 | 345 (7.56) | 22 (2.28) | 155 (7.56) | 0.69 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.200 | 0.100 | 700 | 500 | 346 (7.13) | 22 (2.3) | 154 (7.13) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.200 | 0.100 | 700 | 750 | 346 (6.61) | 22 (2.3) | 154 (6.61) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.200 | 0.100 | 700 | 1000 | 346 (6.93) | 23 (2.17) | 154 (6.93) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.200 | 0.100 | 1000 | 200 | 418 (8.38) | 41 (7.5) | 82 (8.38) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.200 | 0.100 | 1000 | 250 | 418 (8.38) | 41 (7.5) | 82 (8.38) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.200 | 0.100 | 1000 | 500 | 418 (9.21) | 41 (7.35) | 82 (9.21) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.200 | 0.100 | 1000 | 750 | 419 (9.09) | 41 (7.56) | 81 (9.09) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.200 | 0.100 | 1000 | 1000 | 418 (9.21) | 41 (7.56) | 82 (9.21) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.001 | 375 | 200 | 233 (9.44) | 10 (2.88) | 267 (9.44) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.300 | 0.001 | 375 | 250 | 233 (9.44) | 10 (2.88) | 267 (9.44) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.300 | 0.001 | 375 | 500 | 234 (9.81) | 10 (2.88) | 266 (9.81) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.300 | 0.001 | 375 | 750 | 234 (9.97) | 10 (2.88) | 266 (9.97) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.300 | 0.001 | 375 | 1000 | 235 (10.38) | 10 (2.95) | 265 (10.38) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.62 (0.02) |
| 0.300 | 0.001 | 700 | 200 | 341 (7.07) | 22 (1.64) | 159 (7.07) | 0.68 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.300 | 0.001 | 700 | 250 | 341 (7.07) | 22 (1.64) | 159 (7.07) | 0.68 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.300 | 0.001 | 700 | 500 | 341 (6.66) | 22 (1.67) | 159 (6.66) | 0.68 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.300 | 0.001 | 700 | 750 | 342 (6.16) | 22 (1.67) | 158 (6.16) | 0.68 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.300 | 0.001 | 700 | 1000 | 342 (6.46) | 23 (1.3) | 158 (6.46) | 0.68 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.77 (0.01) | 0.79 (0.01) |
| 0.300 | 0.001 | 1000 | 200 | 414 (8.71) | 41 (6.98) | 86 (8.71) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 0.001 | 1000 | 250 | 415 (8.44) | 41 (6.98) | 85 (8.44) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 0.001 | 1000 | 500 | 415 (9.12) | 41 (6.76) | 85 (9.12) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 0.001 | 1000 | 750 | 415 (8.85) | 41 (6.95) | 85 (8.85) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 0.001 | 1000 | 1000 | 415 (8.97) | 41 (6.95) | 85 (8.97) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.01) | 0.85 (0.01) | 0.87 (0.01) |
| 0.300 | 0.010 | 375 | 200 | 235 (9.04) | 10 (2.88) | 265 (9.04) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.300 | 0.010 | 375 | 250 | 236 (8.91) | 10 (2.88) | 264 (8.91) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.01) |
| 0.300 | 0.010 | 375 | 500 | 237 (9.86) | 10 (2.88) | 263 (9.86) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.010 | 375 | 750 | 237 (9.98) | 10 (2.88) | 263 (9.98) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.010 | 375 | 1000 | 238 (10.32) | 10 (2.95) | 262 (10.32) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.010 | 700 | 200 | 345 (6.72) | 22 (1.64) | 155 (6.72) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.010 | 700 | 250 | 345 (6.72) | 22 (1.64) | 155 (6.72) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.010 | 700 | 500 | 346 (6.5) | 22 (1.67) | 154 (6.5) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.010 | 700 | 750 | 346 (5.98) | 22 (1.67) | 154 (5.98) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.010 | 700 | 1000 | 346 (6.3) | 23 (1.3) | 154 (6.3) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.010 | 1000 | 200 | 421 (7.37) | 41 (6.98) | 79 (7.37) | 0.84 (0.01) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.010 | 1000 | 250 | 421 (7.37) | 41 (6.98) | 79 (7.37) | 0.84 (0.01) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.010 | 1000 | 500 | 422 (7.97) | 41 (6.76) | 78 (7.97) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.010 | 1000 | 750 | 422 (7.8) | 41 (6.95) | 78 (7.8) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.010 | 1000 | 1000 | 422 (7.97) | 41 (6.95) | 78 (7.97) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.300 | 0.050 | 375 | 200 | 236 (9.04) | 10 (3.11) | 264 (9.04) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.050 | 375 | 250 | 237 (8.91) | 10 (3.11) | 263 (8.91) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.01) |
| 0.300 | 0.050 | 375 | 500 | 238 (9.86) | 10 (3.11) | 262 (9.86) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.050 | 375 | 750 | 238 (9.98) | 10 (3.11) | 262 (9.98) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.050 | 375 | 1000 | 239 (10.32) | 10 (3.21) | 261 (10.32) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.050 | 700 | 200 | 347 (7.6) | 23 (1.79) | 153 (7.6) | 0.69 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.050 | 700 | 250 | 347 (7.6) | 23 (1.79) | 153 (7.6) | 0.69 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.050 | 700 | 500 | 348 (7.13) | 23 (1.73) | 152 (7.13) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.050 | 700 | 750 | 348 (6.61) | 23 (1.73) | 152 (6.61) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.050 | 700 | 1000 | 348 (6.89) | 23 (1.52) | 152 (6.89) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.050 | 1000 | 200 | 424 (7.79) | 41 (7.5) | 76 (7.79) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.050 | 1000 | 250 | 424 (7.79) | 41 (7.5) | 76 (7.79) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.050 | 1000 | 500 | 425 (8.56) | 42 (7.29) | 75 (8.56) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.050 | 1000 | 750 | 425 (8.43) | 42 (7.48) | 75 (8.43) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.050 | 1000 | 1000 | 425 (8.56) | 42 (7.48) | 75 (8.56) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.100 | 375 | 200 | 237 (9.57) | 11 (3.11) | 263 (9.57) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.300 | 0.100 | 375 | 250 | 237 (9.42) | 11 (3.11) | 263 (9.42) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.300 | 0.100 | 375 | 500 | 238 (10.33) | 11 (3.11) | 262 (10.33) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.100 | 375 | 750 | 239 (10.43) | 11 (3.11) | 261 (10.43) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.100 | 375 | 1000 | 240 (10.69) | 11 (3.21) | 260 (10.69) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.300 | 0.100 | 700 | 200 | 348 (8.04) | 23 (1.79) | 152 (8.04) | 0.7 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.100 | 700 | 250 | 348 (8.04) | 23 (1.79) | 152 (8.04) | 0.7 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.100 | 700 | 500 | 349 (7.57) | 23 (1.73) | 151 (7.57) | 0.7 (0.02) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.100 | 700 | 750 | 349 (7.05) | 23 (1.73) | 151 (7.05) | 0.7 (0.01) | 0.95 (0.01) | 0.78 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.100 | 700 | 1000 | 349 (7.31) | 23 (1.52) | 151 (7.31) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.300 | 0.100 | 1000 | 200 | 426 (7.99) | 42 (7.6) | 74 (7.99) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.100 | 1000 | 250 | 426 (7.99) | 42 (7.6) | 74 (7.99) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.100 | 1000 | 500 | 427 (8.5) | 42 (7.42) | 73 (8.5) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.100 | 1000 | 750 | 427 (8.4) | 42 (7.6) | 73 (8.4) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.300 | 0.100 | 1000 | 1000 | 427 (8.5) | 42 (7.6) | 73 (8.5) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.001 | 375 | 200 | 235 (9.48) | 10 (2.88) | 265 (9.48) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.400 | 0.001 | 375 | 250 | 235 (9.36) | 10 (2.88) | 265 (9.36) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.400 | 0.001 | 375 | 500 | 236 (10.3) | 10 (2.88) | 264 (10.3) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.400 | 0.001 | 375 | 750 | 236 (10.45) | 10 (2.88) | 264 (10.45) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.400 | 0.001 | 375 | 1000 | 237 (10.85) | 10 (2.95) | 263 (10.85) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.63 (0.01) | 0.63 (0.02) |
| 0.400 | 0.001 | 700 | 200 | 345 (6.23) | 23 (1.52) | 155 (6.23) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.001 | 700 | 250 | 345 (6.23) | 23 (1.52) | 155 (6.23) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.001 | 700 | 500 | 345 (5.97) | 23 (1.48) | 155 (5.97) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.001 | 700 | 750 | 346 (5.5) | 23 (1.48) | 154 (5.5) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.001 | 700 | 1000 | 346 (5.86) | 23 (1.1) | 154 (5.86) | 0.69 (0.01) | 0.95 (0) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.001 | 1000 | 200 | 419 (8.44) | 41 (6.98) | 81 (8.44) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 0.001 | 1000 | 250 | 419 (8.44) | 41 (6.98) | 81 (8.44) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 0.001 | 1000 | 500 | 420 (9.22) | 41 (6.76) | 80 (9.22) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 0.001 | 1000 | 750 | 420 (8.93) | 41 (6.95) | 80 (8.93) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 0.001 | 1000 | 1000 | 420 (9.04) | 41 (6.95) | 80 (9.04) | 0.84 (0.02) | 0.93 (0.01) | 0.87 (0.02) | 0.86 (0.01) | 0.88 (0.01) |
| 0.400 | 0.010 | 375 | 200 | 236 (9.18) | 10 (2.88) | 264 (9.18) | 0.47 (0.02) | 0.96 (0.01) | 0.61 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.010 | 375 | 250 | 236 (9.06) | 10 (2.88) | 264 (9.06) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.010 | 375 | 500 | 237 (9.98) | 10 (2.88) | 263 (9.98) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.010 | 375 | 750 | 238 (10.11) | 10 (2.88) | 262 (10.11) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.010 | 375 | 1000 | 238 (10.45) | 10 (2.95) | 262 (10.45) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.010 | 700 | 200 | 346 (5.94) | 23 (1.52) | 154 (5.94) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.010 | 700 | 250 | 346 (5.94) | 23 (1.52) | 154 (5.94) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.010 | 700 | 500 | 347 (5.7) | 23 (1.48) | 153 (5.7) | 0.69 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.010 | 700 | 750 | 348 (5.22) | 23 (1.48) | 152 (5.22) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.010 | 700 | 1000 | 347 (5.59) | 23 (1.1) | 153 (5.59) | 0.69 (0.01) | 0.95 (0) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.010 | 1000 | 200 | 424 (8.5) | 41 (6.98) | 76 (8.5) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.010 | 1000 | 250 | 424 (8.5) | 41 (6.98) | 76 (8.5) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.010 | 1000 | 500 | 424 (9.24) | 41 (6.76) | 76 (9.24) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.02) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.010 | 1000 | 750 | 425 (9.09) | 41 (6.95) | 75 (9.09) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.02) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.010 | 1000 | 1000 | 424 (9.24) | 41 (6.95) | 76 (9.24) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.02) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.050 | 375 | 200 | 237 (9.63) | 10 (3.11) | 263 (9.63) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.050 | 375 | 250 | 238 (9.5) | 10 (3.11) | 262 (9.5) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.050 | 375 | 500 | 239 (10.43) | 10 (3.11) | 261 (10.43) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.050 | 375 | 750 | 239 (10.55) | 10 (3.11) | 261 (10.55) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.050 | 375 | 1000 | 240 (10.86) | 10 (3.21) | 260 (10.86) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.050 | 700 | 200 | 349 (6.94) | 23 (1.64) | 151 (6.94) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.050 | 700 | 250 | 349 (6.94) | 23 (1.64) | 151 (6.94) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.050 | 700 | 500 | 349 (6.73) | 23 (1.52) | 151 (6.73) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.050 | 700 | 750 | 350 (6.2) | 23 (1.52) | 150 (6.2) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.050 | 700 | 1000 | 350 (6.5) | 24 (1.3) | 150 (6.5) | 0.7 (0.01) | 0.95 (0) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.050 | 1000 | 200 | 426 (7.37) | 41 (7.5) | 74 (7.37) | 0.85 (0.01) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.050 | 1000 | 250 | 426 (7.37) | 41 (7.5) | 74 (7.37) | 0.85 (0.01) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.050 | 1000 | 500 | 427 (8.04) | 42 (7.29) | 73 (8.04) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.050 | 1000 | 750 | 428 (7.89) | 42 (7.48) | 72 (7.89) | 0.86 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.050 | 1000 | 1000 | 427 (8.04) | 42 (7.48) | 73 (8.04) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.100 | 375 | 200 | 237 (9.63) | 11 (3.11) | 263 (9.63) | 0.47 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.100 | 375 | 250 | 238 (9.5) | 11 (3.11) | 262 (9.5) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.100 | 375 | 500 | 239 (10.43) | 11 (3.11) | 261 (10.43) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.100 | 375 | 750 | 239 (10.55) | 11 (3.11) | 261 (10.55) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.100 | 375 | 1000 | 240 (10.86) | 11 (3.21) | 260 (10.86) | 0.48 (0.02) | 0.96 (0.01) | 0.62 (0.01) | 0.64 (0.01) | 0.63 (0.02) |
| 0.400 | 0.100 | 700 | 200 | 349 (7.12) | 23 (1.64) | 151 (7.12) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.100 | 700 | 250 | 349 (7.12) | 23 (1.64) | 151 (7.12) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.100 | 700 | 500 | 350 (6.91) | 23 (1.52) | 150 (6.91) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.100 | 700 | 750 | 350 (6.39) | 23 (1.52) | 150 (6.39) | 0.7 (0.01) | 0.95 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.100 | 700 | 1000 | 350 (6.69) | 24 (1.3) | 150 (6.69) | 0.7 (0.01) | 0.95 (0) | 0.77 (0.01) | 0.78 (0.01) | 0.8 (0.01) |
| 0.400 | 0.100 | 1000 | 200 | 427 (7.46) | 42 (7.6) | 73 (7.46) | 0.85 (0.01) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.100 | 1000 | 250 | 427 (7.46) | 42 (7.6) | 73 (7.46) | 0.85 (0.01) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.100 | 1000 | 500 | 428 (8.14) | 42 (7.42) | 72 (8.14) | 0.86 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.100 | 1000 | 750 | 428 (8) | 42 (7.6) | 72 (8) | 0.86 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |
| 0.400 | 0.100 | 1000 | 1000 | 428 (8.14) | 42 (7.6) | 72 (8.14) | 0.86 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) |

## Bumphunter

This table shows the average performance of the Bumphunter method at each .

bump\_tab <-  
 bumphunterRes\_df %>%  
 select(delta, seed, cutoffQ, maxGap,  
 TP, FP, FN, power, precision, AuPR, mcc, F1) %>%   
 filter(delta > 0) %>%   
 group\_by(delta, cutoffQ, maxGap) %>%  
 summarise(  
 TP = CalcMeanSD(TP, sigFigsMean = 0),  
 FP = CalcMeanSD(FP, sigFigsMean = 0),  
 FN = CalcMeanSD(FN, sigFigsMean = 0),  
 Pwr = CalcMeanSD(power),  
 Precis = CalcMeanSD(precision),  
 AuPR = CalcMeanSD(AuPR),  
 MCC = CalcMeanSD(mcc),  
 F1 = CalcMeanSD(F1)  
 )  
  
# write\_csv(bump\_tab, path = "../resultsData/Bumphunter\_total\_results.csv")  
bump\_tab %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | cutoffQ | maxGap | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 |
| 0.025 | 0.90 | 200 | 189 (8.26) | 100 (6.54) | 311 (8.26) | 0.38 (0.02) | 0.58 (0.02) | 0.42 (0.01) | 0.41 (0.02) | 0.49 (0.02) |
| 0.025 | 0.90 | 250 | 197 (9.13) | 120 (5.86) | 303 (9.13) | 0.39 (0.02) | 0.53 (0.02) | 0.41 (0.02) | 0.39 (0.02) | 0.49 (0.02) |
| 0.025 | 0.90 | 500 | 199 (9.79) | 157 (4.93) | 301 (9.79) | 0.4 (0.02) | 0.46 (0.02) | 0.39 (0.02) | 0.34 (0.02) | 0.46 (0.02) |
| 0.025 | 0.90 | 750 | 200 (10.02) | 168 (12.9) | 300 (10.02) | 0.4 (0.02) | 0.42 (0.02) | 0.38 (0.02) | 0.32 (0.02) | 0.44 (0.02) |
| 0.025 | 0.90 | 1000 | 192 (8.51) | 164 (11.8) | 308 (8.51) | 0.38 (0.02) | 0.41 (0.03) | 0.37 (0.02) | 0.31 (0.03) | 0.43 (0.02) |
| 0.025 | 0.95 | 200 | 144 (6.36) | 58 (2.28) | 356 (6.36) | 0.29 (0.01) | 0.67 (0.02) | 0.38 (0.01) | 0.4 (0.02) | 0.44 (0.02) |
| 0.025 | 0.95 | 250 | 144 (7.87) | 69 (3.27) | 356 (7.87) | 0.29 (0.02) | 0.63 (0.02) | 0.36 (0.02) | 0.38 (0.02) | 0.44 (0.02) |
| 0.025 | 0.95 | 500 | 138 (8.08) | 83 (7.73) | 362 (8.08) | 0.28 (0.02) | 0.57 (0.03) | 0.34 (0.02) | 0.35 (0.02) | 0.41 (0.02) |
| 0.025 | 0.95 | 750 | 139 (6.22) | 93 (4.04) | 361 (6.22) | 0.28 (0.01) | 0.53 (0.03) | 0.34 (0.02) | 0.33 (0.02) | 0.41 (0.02) |
| 0.025 | 0.95 | 1000 | 134 (7.4) | 84 (4.39) | 366 (7.4) | 0.27 (0.01) | 0.54 (0.03) | 0.33 (0.02) | 0.33 (0.02) | 0.4 (0.02) |
| 0.025 | 0.99 | 200 | 52 (5.94) | 13 (2.45) | 448 (5.94) | 0.1 (0.01) | 0.8 (0.03) | 0.26 (0.01) | 0.27 (0.02) | 0.21 (0.02) |
| 0.025 | 0.99 | 250 | 54 (4.21) | 18 (2.68) | 446 (4.21) | 0.11 (0.01) | 0.75 (0.03) | 0.26 (0.01) | 0.26 (0.02) | 0.21 (0.02) |
| 0.025 | 0.99 | 500 | 50 (1.3) | 21 (1.87) | 450 (1.3) | 0.1 (0) | 0.67 (0.01) | 0.24 (0) | 0.23 (0.01) | 0.2 (0.01) |
| 0.025 | 0.99 | 750 | 51 (4.76) | 24 (2.55) | 449 (4.76) | 0.1 (0.01) | 0.66 (0.02) | 0.24 (0.01) | 0.23 (0.02) | 0.2 (0.02) |
| 0.025 | 0.99 | 1000 | 47 (4.16) | 24 (2.97) | 453 (4.16) | 0.09 (0.01) | 0.65 (0.02) | 0.24 (0.01) | 0.22 (0.01) | 0.19 (0.02) |
| 0.050 | 0.90 | 200 | 272 (8.32) | 99 (5.87) | 228 (8.32) | 0.54 (0.02) | 0.68 (0.02) | 0.59 (0.01) | 0.57 (0.02) | 0.64 (0.02) |
| 0.050 | 0.90 | 250 | 281 (10.14) | 121 (6.22) | 219 (10.14) | 0.56 (0.02) | 0.63 (0.02) | 0.58 (0.02) | 0.55 (0.02) | 0.63 (0.02) |
| 0.050 | 0.90 | 500 | 289 (9.32) | 159 (4) | 211 (9.32) | 0.58 (0.02) | 0.56 (0.02) | 0.56 (0.02) | 0.51 (0.02) | 0.6 (0.01) |
| 0.050 | 0.90 | 750 | 285 (7.92) | 168 (13.85) | 215 (7.92) | 0.57 (0.02) | 0.53 (0.02) | 0.54 (0.02) | 0.48 (0.02) | 0.58 (0.02) |
| 0.050 | 0.90 | 1000 | 278 (5.59) | 168 (10.47) | 222 (5.59) | 0.56 (0.01) | 0.52 (0.02) | 0.53 (0.02) | 0.47 (0.02) | 0.57 (0.02) |
| 0.050 | 0.95 | 200 | 240 (13.82) | 55 (2.41) | 260 (13.82) | 0.48 (0.03) | 0.78 (0.01) | 0.57 (0.02) | 0.59 (0.02) | 0.63 (0.02) |
| 0.050 | 0.95 | 250 | 248 (10.92) | 68 (3.36) | 252 (10.92) | 0.5 (0.02) | 0.75 (0.02) | 0.56 (0.02) | 0.58 (0.02) | 0.63 (0.02) |
| 0.050 | 0.95 | 500 | 239 (10.01) | 81 (6.11) | 261 (10.01) | 0.48 (0.02) | 0.71 (0.03) | 0.52 (0.02) | 0.55 (0.02) | 0.61 (0.02) |
| 0.050 | 0.95 | 750 | 239 (9.21) | 92 (6.52) | 261 (9.21) | 0.48 (0.02) | 0.67 (0.02) | 0.52 (0.02) | 0.53 (0.02) | 0.6 (0.02) |
| 0.050 | 0.95 | 1000 | 228 (8.35) | 85 (5.1) | 272 (8.35) | 0.46 (0.02) | 0.68 (0.03) | 0.5 (0.02) | 0.52 (0.02) | 0.59 (0.02) |
| 0.050 | 0.99 | 200 | 136 (14.52) | 12 (2.97) | 364 (14.52) | 0.27 (0.03) | 0.92 (0.01) | 0.43 (0.02) | 0.49 (0.02) | 0.46 (0.04) |
| 0.050 | 0.99 | 250 | 139 (11.21) | 18 (2.45) | 361 (11.21) | 0.28 (0.02) | 0.89 (0.01) | 0.42 (0.02) | 0.49 (0.02) | 0.47 (0.03) |
| 0.050 | 0.99 | 500 | 128 (7.87) | 22 (2) | 372 (7.87) | 0.26 (0.02) | 0.84 (0.01) | 0.39 (0.01) | 0.45 (0.02) | 0.43 (0.03) |
| 0.050 | 0.99 | 750 | 127 (9.28) | 24 (3.44) | 373 (9.28) | 0.25 (0.02) | 0.83 (0.02) | 0.39 (0.02) | 0.44 (0.02) | 0.43 (0.03) |
| 0.050 | 0.99 | 1000 | 122 (9.74) | 24 (2.7) | 378 (9.74) | 0.24 (0.02) | 0.83 (0.02) | 0.38 (0.02) | 0.43 (0.03) | 0.42 (0.03) |
| 0.100 | 0.90 | 200 | 278 (9.58) | 97 (4.76) | 222 (9.58) | 0.56 (0.02) | 0.7 (0.02) | 0.64 (0.01) | 0.59 (0.02) | 0.66 (0.02) |
| 0.100 | 0.90 | 250 | 287 (11.72) | 117 (5.03) | 213 (11.72) | 0.57 (0.02) | 0.67 (0.02) | 0.64 (0.02) | 0.58 (0.02) | 0.65 (0.02) |
| 0.100 | 0.90 | 500 | 299 (9.91) | 153 (5.03) | 201 (9.91) | 0.6 (0.02) | 0.6 (0.02) | 0.64 (0.02) | 0.55 (0.02) | 0.64 (0.02) |
| 0.100 | 0.90 | 750 | 297 (7.4) | 165 (12.72) | 203 (7.4) | 0.59 (0.01) | 0.58 (0.02) | 0.63 (0.02) | 0.53 (0.02) | 0.62 (0.02) |
| 0.100 | 0.90 | 1000 | 292 (4.97) | 163 (10.94) | 208 (4.97) | 0.58 (0.01) | 0.57 (0.03) | 0.62 (0.01) | 0.52 (0.02) | 0.61 (0.02) |
| 0.100 | 0.95 | 200 | 272 (10.57) | 53 (2.45) | 228 (10.57) | 0.54 (0.02) | 0.82 (0.01) | 0.64 (0.01) | 0.65 (0.02) | 0.7 (0.02) |
| 0.100 | 0.95 | 250 | 280 (11.73) | 66 (2.88) | 220 (11.73) | 0.56 (0.02) | 0.79 (0.02) | 0.64 (0.02) | 0.65 (0.02) | 0.7 (0.02) |
| 0.100 | 0.95 | 500 | 282 (11.39) | 78 (5.4) | 218 (11.39) | 0.56 (0.02) | 0.76 (0.02) | 0.63 (0.02) | 0.63 (0.03) | 0.69 (0.02) |
| 0.100 | 0.95 | 750 | 276 (9.6) | 87 (5.92) | 224 (9.6) | 0.55 (0.02) | 0.74 (0.02) | 0.62 (0.02) | 0.61 (0.02) | 0.68 (0.02) |
| 0.100 | 0.95 | 1000 | 269 (9.09) | 84 (4.18) | 231 (9.09) | 0.54 (0.02) | 0.74 (0.03) | 0.61 (0.02) | 0.61 (0.03) | 0.67 (0.02) |
| 0.100 | 0.99 | 200 | 244 (19.24) | 9 (3) | 256 (19.24) | 0.49 (0.04) | 0.97 (0.01) | 0.62 (0.03) | 0.68 (0.03) | 0.69 (0.03) |
| 0.100 | 0.99 | 250 | 252 (19.99) | 14 (3.19) | 248 (19.99) | 0.5 (0.04) | 0.95 (0.01) | 0.63 (0.03) | 0.69 (0.03) | 0.7 (0.03) |
| 0.100 | 0.99 | 500 | 244 (16.89) | 18 (2.59) | 256 (16.89) | 0.49 (0.03) | 0.93 (0.01) | 0.61 (0.02) | 0.66 (0.03) | 0.68 (0.03) |
| 0.100 | 0.99 | 750 | 234 (8.75) | 19 (4.76) | 266 (8.75) | 0.47 (0.02) | 0.92 (0.02) | 0.59 (0.02) | 0.65 (0.02) | 0.66 (0.02) |
| 0.100 | 0.99 | 1000 | 221 (14.17) | 21 (1.92) | 279 (14.17) | 0.44 (0.03) | 0.91 (0) | 0.57 (0.02) | 0.62 (0.02) | 0.64 (0.03) |
| 0.150 | 0.90 | 200 | 278 (9.44) | 92 (6.78) | 222 (9.44) | 0.56 (0.02) | 0.72 (0.02) | 0.66 (0.01) | 0.6 (0.02) | 0.67 (0.02) |
| 0.150 | 0.90 | 250 | 287 (11.56) | 112 (6.31) | 213 (11.56) | 0.57 (0.02) | 0.68 (0.02) | 0.66 (0.02) | 0.59 (0.02) | 0.66 (0.02) |
| 0.150 | 0.90 | 500 | 299 (10.31) | 145 (5.93) | 201 (10.31) | 0.6 (0.02) | 0.62 (0.02) | 0.66 (0.02) | 0.56 (0.02) | 0.65 (0.01) |
| 0.150 | 0.90 | 750 | 297 (8.44) | 157 (11.69) | 203 (8.44) | 0.59 (0.02) | 0.6 (0.02) | 0.65 (0.02) | 0.55 (0.02) | 0.63 (0.01) |
| 0.150 | 0.90 | 1000 | 293 (5.32) | 152 (11.19) | 207 (5.32) | 0.59 (0.01) | 0.59 (0.03) | 0.64 (0.01) | 0.53 (0.02) | 0.62 (0.02) |
| 0.150 | 0.95 | 200 | 272 (10.76) | 49 (4.18) | 228 (10.76) | 0.54 (0.02) | 0.84 (0.01) | 0.66 (0.01) | 0.66 (0.01) | 0.71 (0.02) |
| 0.150 | 0.95 | 250 | 281 (11.95) | 63 (2.86) | 219 (11.95) | 0.56 (0.02) | 0.8 (0.02) | 0.66 (0.02) | 0.65 (0.02) | 0.7 (0.02) |
| 0.150 | 0.95 | 500 | 282 (11.9) | 74 (4.98) | 218 (11.9) | 0.56 (0.02) | 0.78 (0.03) | 0.65 (0.02) | 0.64 (0.03) | 0.7 (0.02) |
| 0.150 | 0.95 | 750 | 277 (9.2) | 83 (6.44) | 223 (9.2) | 0.55 (0.02) | 0.76 (0.03) | 0.64 (0.02) | 0.63 (0.03) | 0.69 (0.02) |
| 0.150 | 0.95 | 1000 | 270 (8.75) | 80 (4.64) | 230 (8.75) | 0.54 (0.02) | 0.75 (0.03) | 0.63 (0.02) | 0.62 (0.03) | 0.68 (0.02) |
| 0.150 | 0.99 | 200 | 256 (15.47) | 8 (1.82) | 244 (15.47) | 0.51 (0.03) | 0.97 (0) | 0.64 (0.02) | 0.71 (0.02) | 0.72 (0.03) |
| 0.150 | 0.99 | 250 | 260 (14.54) | 11 (3.49) | 240 (14.54) | 0.52 (0.03) | 0.96 (0.01) | 0.65 (0.02) | 0.71 (0.02) | 0.72 (0.03) |
| 0.150 | 0.99 | 500 | 255 (16.61) | 14 (3.67) | 245 (16.61) | 0.51 (0.03) | 0.95 (0.01) | 0.63 (0.02) | 0.69 (0.02) | 0.7 (0.03) |
| 0.150 | 0.99 | 750 | 243 (7.56) | 16 (4.09) | 257 (7.56) | 0.49 (0.02) | 0.94 (0.02) | 0.61 (0.01) | 0.67 (0.02) | 0.69 (0.02) |
| 0.150 | 0.99 | 1000 | 233 (15.87) | 17 (0.84) | 267 (15.87) | 0.47 (0.03) | 0.93 (0) | 0.6 (0.02) | 0.65 (0.03) | 0.67 (0.03) |
| 0.200 | 0.90 | 200 | 277 (9.24) | 85 (6.31) | 223 (9.24) | 0.55 (0.02) | 0.74 (0.02) | 0.66 (0.01) | 0.61 (0.02) | 0.68 (0.02) |
| 0.200 | 0.90 | 250 | 287 (11.36) | 106 (6.07) | 213 (11.36) | 0.57 (0.02) | 0.7 (0.02) | 0.67 (0.02) | 0.6 (0.02) | 0.67 (0.02) |
| 0.200 | 0.90 | 500 | 299 (10.31) | 136 (6.11) | 201 (10.31) | 0.6 (0.02) | 0.64 (0.02) | 0.67 (0.02) | 0.57 (0.02) | 0.66 (0.01) |
| 0.200 | 0.90 | 750 | 297 (8.25) | 146 (9.51) | 203 (8.25) | 0.59 (0.02) | 0.62 (0.02) | 0.67 (0.02) | 0.56 (0.02) | 0.65 (0.02) |
| 0.200 | 0.90 | 1000 | 292 (5.54) | 145 (8.83) | 208 (5.54) | 0.58 (0.01) | 0.61 (0.03) | 0.66 (0.01) | 0.55 (0.02) | 0.63 (0.02) |
| 0.200 | 0.95 | 200 | 272 (10.65) | 46 (3.13) | 228 (10.65) | 0.54 (0.02) | 0.85 (0.01) | 0.66 (0.02) | 0.67 (0.02) | 0.71 (0.02) |
| 0.200 | 0.95 | 250 | 280 (11.78) | 62 (3.16) | 220 (11.78) | 0.56 (0.02) | 0.81 (0.02) | 0.67 (0.02) | 0.66 (0.02) | 0.71 (0.02) |
| 0.200 | 0.95 | 500 | 281 (12.18) | 68 (6.54) | 219 (12.18) | 0.56 (0.02) | 0.8 (0.03) | 0.66 (0.02) | 0.65 (0.03) | 0.71 (0.02) |
| 0.200 | 0.95 | 750 | 277 (9.68) | 76 (8.11) | 223 (9.68) | 0.55 (0.02) | 0.77 (0.03) | 0.65 (0.02) | 0.64 (0.03) | 0.69 (0.02) |
| 0.200 | 0.95 | 1000 | 269 (9.21) | 76 (5.48) | 231 (9.21) | 0.54 (0.02) | 0.77 (0.03) | 0.64 (0.02) | 0.62 (0.03) | 0.68 (0.02) |
| 0.200 | 0.99 | 200 | 260 (16.03) | 7 (1.95) | 240 (16.03) | 0.52 (0.03) | 0.98 (0) | 0.65 (0.02) | 0.71 (0.02) | 0.73 (0.03) |
| 0.200 | 0.99 | 250 | 264 (15.31) | 10 (1.95) | 236 (15.31) | 0.53 (0.03) | 0.97 (0) | 0.66 (0.02) | 0.71 (0.02) | 0.73 (0.03) |
| 0.200 | 0.99 | 500 | 259 (19.1) | 13 (3.32) | 241 (19.1) | 0.52 (0.04) | 0.95 (0.01) | 0.64 (0.03) | 0.7 (0.03) | 0.72 (0.03) |
| 0.200 | 0.99 | 750 | 247 (7.3) | 14 (3.54) | 253 (7.3) | 0.49 (0.01) | 0.95 (0.01) | 0.62 (0.01) | 0.68 (0.01) | 0.7 (0.01) |
| 0.200 | 0.99 | 1000 | 238 (14.01) | 16 (0.84) | 262 (14.01) | 0.48 (0.03) | 0.94 (0) | 0.61 (0.02) | 0.67 (0.02) | 0.68 (0.03) |
| 0.300 | 0.90 | 200 | 277 (9.24) | 80 (4.44) | 223 (9.24) | 0.55 (0.02) | 0.75 (0.02) | 0.67 (0.01) | 0.62 (0.02) | 0.68 (0.02) |
| 0.300 | 0.90 | 250 | 287 (11.3) | 97 (4.27) | 213 (11.3) | 0.57 (0.02) | 0.72 (0.02) | 0.68 (0.02) | 0.61 (0.02) | 0.68 (0.02) |
| 0.300 | 0.90 | 500 | 299 (10.11) | 127 (3.7) | 201 (10.11) | 0.6 (0.02) | 0.66 (0.02) | 0.69 (0.02) | 0.59 (0.02) | 0.67 (0.01) |
| 0.300 | 0.90 | 750 | 296 (7.92) | 135 (10.76) | 204 (7.92) | 0.59 (0.02) | 0.65 (0.02) | 0.68 (0.01) | 0.58 (0.02) | 0.66 (0.02) |
| 0.300 | 0.90 | 1000 | 291 (5.97) | 137 (8.35) | 209 (5.97) | 0.58 (0.01) | 0.64 (0.03) | 0.67 (0.01) | 0.56 (0.03) | 0.65 (0.02) |
| 0.300 | 0.95 | 200 | 272 (10.65) | 42 (3.63) | 228 (10.65) | 0.54 (0.02) | 0.87 (0.01) | 0.67 (0.02) | 0.68 (0.02) | 0.72 (0.02) |
| 0.300 | 0.95 | 250 | 280 (11.78) | 57 (5.15) | 220 (11.78) | 0.56 (0.02) | 0.82 (0.02) | 0.68 (0.02) | 0.67 (0.02) | 0.71 (0.02) |
| 0.300 | 0.95 | 500 | 281 (12.28) | 59 (4.93) | 219 (12.28) | 0.56 (0.02) | 0.83 (0.03) | 0.67 (0.02) | 0.67 (0.03) | 0.72 (0.02) |
| 0.300 | 0.95 | 750 | 277 (9.53) | 66 (8.2) | 223 (9.53) | 0.55 (0.02) | 0.81 (0.03) | 0.66 (0.02) | 0.65 (0.03) | 0.7 (0.02) |
| 0.300 | 0.95 | 1000 | 268 (8.94) | 69 (5.92) | 232 (8.94) | 0.54 (0.02) | 0.8 (0.04) | 0.65 (0.02) | 0.64 (0.03) | 0.69 (0.02) |
| 0.300 | 0.99 | 200 | 262 (14.67) | 6 (1.67) | 238 (14.67) | 0.52 (0.03) | 0.98 (0) | 0.66 (0.02) | 0.72 (0.02) | 0.73 (0.03) |
| 0.300 | 0.99 | 250 | 266 (16.32) | 9 (2.61) | 234 (16.32) | 0.53 (0.03) | 0.97 (0.01) | 0.66 (0.02) | 0.72 (0.02) | 0.73 (0.03) |
| 0.300 | 0.99 | 500 | 262 (16.66) | 11 (3.42) | 238 (16.66) | 0.52 (0.03) | 0.96 (0.01) | 0.65 (0.02) | 0.71 (0.02) | 0.73 (0.03) |
| 0.300 | 0.99 | 750 | 253 (11.14) | 12 (3.58) | 247 (11.14) | 0.51 (0.02) | 0.96 (0.01) | 0.64 (0.02) | 0.7 (0.02) | 0.72 (0.02) |
| 0.300 | 0.99 | 1000 | 242 (13.22) | 14 (1.14) | 258 (13.22) | 0.48 (0.03) | 0.95 (0.01) | 0.62 (0.02) | 0.68 (0.02) | 0.69 (0.02) |
| 0.400 | 0.90 | 200 | 277 (9.24) | 77 (3.54) | 223 (9.24) | 0.55 (0.02) | 0.77 (0.02) | 0.67 (0.01) | 0.63 (0.02) | 0.69 (0.02) |
| 0.400 | 0.90 | 250 | 287 (11.3) | 94 (3.7) | 213 (11.3) | 0.57 (0.02) | 0.73 (0.02) | 0.68 (0.02) | 0.62 (0.02) | 0.68 (0.02) |
| 0.400 | 0.90 | 500 | 299 (10.11) | 121 (4.15) | 201 (10.11) | 0.6 (0.02) | 0.68 (0.02) | 0.69 (0.02) | 0.6 (0.02) | 0.68 (0.01) |
| 0.400 | 0.90 | 750 | 296 (7.95) | 128 (9.35) | 204 (7.95) | 0.59 (0.02) | 0.68 (0.02) | 0.69 (0.01) | 0.6 (0.02) | 0.67 (0.02) |
| 0.400 | 0.90 | 1000 | 291 (6) | 130 (7.4) | 209 (6) | 0.58 (0.01) | 0.66 (0.03) | 0.68 (0.01) | 0.58 (0.03) | 0.66 (0.02) |
| 0.400 | 0.95 | 200 | 272 (10.73) | 37 (4.45) | 228 (10.73) | 0.54 (0.02) | 0.89 (0.02) | 0.67 (0.02) | 0.69 (0.02) | 0.72 (0.02) |
| 0.400 | 0.95 | 250 | 280 (11.83) | 52 (6.15) | 220 (11.83) | 0.56 (0.02) | 0.84 (0.03) | 0.68 (0.02) | 0.68 (0.03) | 0.72 (0.02) |
| 0.400 | 0.95 | 500 | 281 (12.28) | 52 (3.71) | 219 (12.28) | 0.56 (0.02) | 0.85 (0.02) | 0.68 (0.02) | 0.69 (0.02) | 0.73 (0.02) |
| 0.400 | 0.95 | 750 | 276 (9.51) | 59 (7.3) | 224 (9.51) | 0.55 (0.02) | 0.83 (0.03) | 0.67 (0.02) | 0.67 (0.03) | 0.71 (0.02) |
| 0.400 | 0.95 | 1000 | 267 (8.53) | 62 (7.92) | 233 (8.53) | 0.53 (0.02) | 0.82 (0.04) | 0.65 (0.01) | 0.65 (0.03) | 0.7 (0.03) |
| 0.400 | 0.99 | 200 | 262 (14.27) | 5 (2) | 238 (14.27) | 0.52 (0.03) | 0.98 (0.01) | 0.66 (0.02) | 0.72 (0.02) | 0.73 (0.02) |
| 0.400 | 0.99 | 250 | 268 (14.74) | 8 (2.39) | 232 (14.74) | 0.54 (0.03) | 0.98 (0.01) | 0.67 (0.02) | 0.73 (0.02) | 0.74 (0.02) |
| 0.400 | 0.99 | 500 | 264 (14.1) | 10 (3.39) | 236 (14.1) | 0.53 (0.03) | 0.97 (0.01) | 0.66 (0.02) | 0.72 (0.02) | 0.73 (0.02) |
| 0.400 | 0.99 | 750 | 255 (9.76) | 12 (4.02) | 245 (9.76) | 0.51 (0.02) | 0.96 (0.02) | 0.65 (0.02) | 0.71 (0.02) | 0.72 (0.02) |
| 0.400 | 0.99 | 1000 | 243 (12.28) | 13 (2.41) | 257 (12.28) | 0.49 (0.02) | 0.96 (0.01) | 0.63 (0.02) | 0.69 (0.02) | 0.7 (0.02) |

## Comb-p

This table shows the average performance of the Comb-p method at each .

comb\_tab <-  
 combpRes\_df %>%  
 select(delta, method, seed, combSeed, combDist,  
 TP, FP, FN, power, precision, AuPR, mcc, F1, time) %>%   
 filter(delta > 0) %>%   
 group\_by(delta, combSeed, combDist) %>%  
 summarise(  
 method = "Comb-p",  
 TP = CalcMeanSD(TP, sigFigsMean = 0),  
 FP = CalcMeanSD(FP, sigFigsMean = 0),  
 FN = CalcMeanSD(FN, sigFigsMean = 0),  
 Pwr = CalcMeanSD(power),  
 Precis = CalcMeanSD(precision),  
 AuPR = CalcMeanSD(AuPR),  
 MCC = CalcMeanSD(mcc),  
 F1 = CalcMeanSD(F1),  
 time = CalcMeanSD(time, sigFigsMean = 0)  
 )  
  
# write\_csv(comb\_tab, path = "../resultsData/Combp\_total\_results.csv")  
comb\_tab %>%   
 select(-method) %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | seed | dist | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | 0.001 | 200 | 101 (10.02) | 0 (0.55) | 399 (10.02) | 0.2 (0.02) | 1 (0.01) | 0.39 (0.02) | 0.42 (0.02) | 0.34 (0.03) | 55 (0.54) |
| 0.025 | 0.001 | 250 | 109 (10.99) | 1 (0.84) | 391 (10.99) | 0.22 (0.02) | 0.99 (0) | 0.4 (0.02) | 0.43 (0.02) | 0.36 (0.03) | 55 (0.91) |
| 0.025 | 0.001 | 500 | 125 (9.64) | 3 (1.14) | 375 (9.64) | 0.25 (0.02) | 0.98 (0.01) | 0.43 (0.02) | 0.46 (0.02) | 0.39 (0.03) | 55 (0.75) |
| 0.025 | 0.001 | 750 | 124 (12.42) | 6 (1.82) | 376 (12.42) | 0.25 (0.02) | 0.96 (0.01) | 0.42 (0.02) | 0.45 (0.03) | 0.39 (0.03) | 55 (0.62) |
| 0.025 | 0.001 | 1000 | 122 (12.11) | 8 (1.95) | 378 (12.11) | 0.24 (0.02) | 0.95 (0.01) | 0.42 (0.02) | 0.44 (0.02) | 0.38 (0.03) | 57 (3.41) |
| 0.025 | 0.010 | 200 | 121 (10.89) | 1 (0.71) | 379 (10.89) | 0.24 (0.02) | 0.99 (0.01) | 0.43 (0.02) | 0.46 (0.02) | 0.39 (0.03) | 55 (1.44) |
| 0.025 | 0.010 | 250 | 132 (9.69) | 2 (1.22) | 368 (9.69) | 0.26 (0.02) | 0.99 (0.01) | 0.44 (0.02) | 0.47 (0.02) | 0.41 (0.02) | 54 (0.62) |
| 0.025 | 0.010 | 500 | 161 (9.58) | 4 (1.14) | 339 (9.58) | 0.32 (0.02) | 0.98 (0.01) | 0.49 (0.02) | 0.52 (0.02) | 0.48 (0.02) | 55 (0.66) |
| 0.025 | 0.010 | 750 | 167 (9.29) | 7 (2.07) | 333 (9.29) | 0.33 (0.02) | 0.96 (0.01) | 0.5 (0.02) | 0.53 (0.02) | 0.49 (0.02) | 55 (0.22) |
| 0.025 | 0.010 | 1000 | 164 (11.63) | 11 (1.64) | 336 (11.63) | 0.33 (0.02) | 0.94 (0.01) | 0.49 (0.02) | 0.51 (0.02) | 0.48 (0.03) | 56 (0.53) |
| 0.025 | 0.050 | 200 | 130 (8.4) | 1 (0.71) | 370 (8.4) | 0.26 (0.02) | 0.99 (0.01) | 0.44 (0.02) | 0.48 (0.02) | 0.41 (0.02) | 55 (0.58) |
| 0.025 | 0.050 | 250 | 142 (8.79) | 2 (1.22) | 358 (8.79) | 0.28 (0.02) | 0.99 (0.01) | 0.46 (0.01) | 0.49 (0.02) | 0.44 (0.02) | 55 (0.69) |
| 0.025 | 0.050 | 500 | 188 (5.96) | 6 (2.17) | 312 (5.96) | 0.38 (0.01) | 0.97 (0.01) | 0.54 (0.01) | 0.57 (0.01) | 0.54 (0.01) | 55 (0.43) |
| 0.025 | 0.050 | 750 | 198 (8.11) | 12 (2.86) | 302 (8.11) | 0.4 (0.02) | 0.95 (0.02) | 0.55 (0.01) | 0.57 (0.02) | 0.55 (0.02) | 55 (0.58) |
| 0.025 | 0.050 | 1000 | 199 (12.66) | 14 (2.59) | 301 (12.66) | 0.4 (0.03) | 0.93 (0.01) | 0.55 (0.02) | 0.57 (0.02) | 0.55 (0.03) | 56 (0.99) |
| 0.025 | 0.100 | 200 | 134 (7.79) | 1 (0.71) | 366 (7.79) | 0.27 (0.02) | 0.99 (0) | 0.45 (0.01) | 0.48 (0.01) | 0.42 (0.02) | 55 (0.58) |
| 0.025 | 0.100 | 250 | 147 (7.89) | 2 (1.22) | 353 (7.89) | 0.29 (0.02) | 0.99 (0.01) | 0.47 (0.01) | 0.5 (0.01) | 0.45 (0.02) | 55 (0.18) |
| 0.025 | 0.100 | 500 | 201 (3.54) | 6 (2.05) | 299 (3.54) | 0.4 (0.01) | 0.97 (0.01) | 0.56 (0.01) | 0.59 (0.01) | 0.57 (0.01) | 55 (1.01) |
| 0.025 | 0.100 | 750 | 211 (10.2) | 13 (3.19) | 289 (10.2) | 0.42 (0.02) | 0.94 (0.02) | 0.57 (0.02) | 0.59 (0.02) | 0.58 (0.02) | 55 (0.47) |
| 0.025 | 0.100 | 1000 | 214 (12.99) | 16 (2.86) | 286 (12.99) | 0.43 (0.03) | 0.93 (0.02) | 0.57 (0.02) | 0.59 (0.03) | 0.58 (0.03) | 55 (0.58) |
| 0.050 | 0.001 | 200 | 235 (8.82) | 2 (1.34) | 265 (8.82) | 0.47 (0.02) | 0.99 (0.01) | 0.62 (0.01) | 0.65 (0.01) | 0.64 (0.02) | 56 (0.92) |
| 0.050 | 0.001 | 250 | 243 (10.71) | 3 (1.52) | 257 (10.71) | 0.49 (0.02) | 0.99 (0.01) | 0.63 (0.02) | 0.66 (0.02) | 0.65 (0.02) | 56 (0.44) |
| 0.050 | 0.001 | 500 | 283 (9.34) | 5 (1.58) | 217 (9.34) | 0.57 (0.02) | 0.98 (0.01) | 0.69 (0.02) | 0.71 (0.02) | 0.72 (0.02) | 55 (0.55) |
| 0.050 | 0.001 | 750 | 297 (10.92) | 7 (2.3) | 203 (10.92) | 0.59 (0.02) | 0.98 (0.01) | 0.71 (0.02) | 0.73 (0.02) | 0.74 (0.02) | 56 (0.84) |
| 0.050 | 0.001 | 1000 | 293 (8.51) | 12 (3.56) | 207 (8.51) | 0.59 (0.02) | 0.96 (0.01) | 0.69 (0.01) | 0.72 (0.01) | 0.73 (0.01) | 56 (0.21) |
| 0.050 | 0.010 | 200 | 251 (9.26) | 2 (1.3) | 249 (9.26) | 0.5 (0.02) | 0.99 (0.01) | 0.64 (0.01) | 0.67 (0.01) | 0.67 (0.02) | 56 (0.34) |
| 0.050 | 0.010 | 250 | 262 (8.85) | 3 (1.82) | 238 (8.85) | 0.52 (0.02) | 0.99 (0.01) | 0.66 (0.01) | 0.69 (0.01) | 0.68 (0.02) | 55 (0.5) |
| 0.050 | 0.010 | 500 | 314 (8.2) | 6 (2.07) | 186 (8.2) | 0.63 (0.02) | 0.98 (0.01) | 0.73 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 56 (0.28) |
| 0.050 | 0.010 | 750 | 331 (10.88) | 11 (3.27) | 169 (10.88) | 0.66 (0.02) | 0.97 (0.01) | 0.75 (0.02) | 0.77 (0.02) | 0.79 (0.02) | 56 (0.14) |
| 0.050 | 0.010 | 1000 | 339 (6.24) | 17 (4.53) | 161 (6.24) | 0.68 (0.01) | 0.95 (0.01) | 0.76 (0.01) | 0.77 (0.01) | 0.79 (0.01) | 56 (0.69) |
| 0.050 | 0.050 | 200 | 256 (9.86) | 2 (1.3) | 244 (9.86) | 0.51 (0.02) | 0.99 (0.01) | 0.65 (0.01) | 0.68 (0.02) | 0.67 (0.02) | 55 (0.43) |
| 0.050 | 0.050 | 250 | 268 (10.44) | 3 (1.82) | 232 (10.44) | 0.54 (0.02) | 0.99 (0.01) | 0.67 (0.02) | 0.7 (0.01) | 0.69 (0.02) | 56 (0.44) |
| 0.050 | 0.050 | 500 | 329 (7.66) | 6 (2.3) | 171 (7.66) | 0.66 (0.02) | 0.98 (0.01) | 0.75 (0.01) | 0.78 (0.01) | 0.79 (0.01) | 56 (0.44) |
| 0.050 | 0.050 | 750 | 352 (10.55) | 13 (3.58) | 148 (10.55) | 0.7 (0.02) | 0.97 (0.01) | 0.78 (0.02) | 0.8 (0.02) | 0.81 (0.02) | 56 (0.37) |
| 0.050 | 0.050 | 1000 | 364 (6.94) | 20 (5) | 136 (6.94) | 0.73 (0.01) | 0.95 (0.01) | 0.79 (0.01) | 0.8 (0.01) | 0.82 (0.01) | 56 (0.58) |
| 0.050 | 0.100 | 200 | 259 (8.51) | 2 (1.3) | 241 (8.51) | 0.52 (0.02) | 0.99 (0) | 0.66 (0.01) | 0.68 (0.01) | 0.68 (0.02) | 56 (0.55) |
| 0.050 | 0.100 | 250 | 273 (9.51) | 3 (1.82) | 227 (9.51) | 0.55 (0.02) | 0.99 (0.01) | 0.68 (0.01) | 0.7 (0.01) | 0.7 (0.02) | 56 (0.34) |
| 0.050 | 0.100 | 500 | 335 (5.12) | 7 (2.3) | 165 (5.12) | 0.67 (0.01) | 0.98 (0.01) | 0.76 (0.01) | 0.78 (0.01) | 0.79 (0.01) | 56 (0.76) |
| 0.050 | 0.100 | 750 | 361 (9.34) | 13 (3.58) | 139 (9.34) | 0.72 (0.02) | 0.97 (0.01) | 0.8 (0.02) | 0.81 (0.01) | 0.82 (0.01) | 56 (0.41) |
| 0.050 | 0.100 | 1000 | 373 (6.3) | 22 (5.17) | 127 (6.3) | 0.75 (0.01) | 0.94 (0.01) | 0.8 (0) | 0.81 (0.01) | 0.83 (0.01) | 56 (0.67) |
| 0.100 | 0.001 | 200 | 343 (9.85) | 2 (1.41) | 157 (9.85) | 0.69 (0.02) | 0.99 (0) | 0.78 (0.01) | 0.8 (0.01) | 0.81 (0.01) | 56 (0.66) |
| 0.100 | 0.001 | 250 | 359 (11.01) | 3 (1.82) | 141 (11.01) | 0.72 (0.02) | 0.99 (0) | 0.8 (0.02) | 0.82 (0.02) | 0.83 (0.02) | 56 (0.81) |
| 0.100 | 0.001 | 500 | 413 (3.42) | 6 (2.55) | 87 (3.42) | 0.83 (0.01) | 0.99 (0.01) | 0.87 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 56 (0.43) |
| 0.100 | 0.001 | 750 | 431 (4.21) | 11 (4.44) | 69 (4.21) | 0.86 (0.01) | 0.98 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 0.91 (0.01) | 56 (0.84) |
| 0.100 | 0.001 | 1000 | 432 (2.55) | 16 (4.97) | 68 (2.55) | 0.86 (0.01) | 0.97 (0.01) | 0.88 (0.01) | 0.9 (0.01) | 0.91 (0.01) | 57 (0.51) |
| 0.100 | 0.010 | 200 | 349 (10.09) | 3 (1.3) | 151 (10.09) | 0.7 (0.02) | 0.99 (0) | 0.79 (0.02) | 0.81 (0.01) | 0.82 (0.01) | 56 (1.04) |
| 0.100 | 0.010 | 250 | 367 (9.87) | 4 (2.07) | 133 (9.87) | 0.73 (0.02) | 0.99 (0.01) | 0.81 (0.02) | 0.83 (0.01) | 0.84 (0.01) | 56 (0.3) |
| 0.100 | 0.010 | 500 | 421 (5.32) | 8 (2.61) | 79 (5.32) | 0.84 (0.01) | 0.98 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.91 (0.01) | 56 (0.61) |
| 0.100 | 0.010 | 750 | 443 (2.68) | 13 (4.16) | 57 (2.68) | 0.89 (0.01) | 0.97 (0.01) | 0.91 (0.01) | 0.91 (0.01) | 0.93 (0.01) | 57 (0.76) |
| 0.100 | 0.010 | 1000 | 447 (2.95) | 19 (4.72) | 53 (2.95) | 0.89 (0.01) | 0.96 (0.01) | 0.9 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 56 (0.37) |
| 0.100 | 0.050 | 200 | 352 (9.98) | 3 (1.3) | 148 (9.98) | 0.7 (0.02) | 0.99 (0) | 0.79 (0.01) | 0.81 (0.01) | 0.82 (0.01) | 56 (0.56) |
| 0.100 | 0.050 | 250 | 369 (9.04) | 4 (2.07) | 131 (9.04) | 0.74 (0.02) | 0.99 (0.01) | 0.82 (0.02) | 0.83 (0.01) | 0.84 (0.01) | 56 (0.67) |
| 0.100 | 0.050 | 500 | 427 (4.76) | 8 (2.83) | 73 (4.76) | 0.85 (0.01) | 0.98 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 0.91 (0.01) | 56 (0.46) |
| 0.100 | 0.050 | 750 | 448 (3.11) | 16 (4.36) | 52 (3.11) | 0.9 (0.01) | 0.97 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0) | 57 (0.53) |
| 0.100 | 0.050 | 1000 | 454 (3.27) | 23 (5.32) | 46 (3.27) | 0.91 (0.01) | 0.95 (0.01) | 0.91 (0.01) | 0.92 (0) | 0.93 (0) | 57 (1.06) |
| 0.100 | 0.100 | 200 | 352 (9.82) | 3 (1.3) | 148 (9.82) | 0.7 (0.02) | 0.99 (0) | 0.79 (0.01) | 0.81 (0.01) | 0.82 (0.01) | 56 (0.46) |
| 0.100 | 0.100 | 250 | 369 (9) | 4 (2.07) | 131 (9) | 0.74 (0.02) | 0.99 (0.01) | 0.82 (0.02) | 0.83 (0.01) | 0.84 (0.01) | 56 (0.73) |
| 0.100 | 0.100 | 500 | 428 (5.03) | 8 (2.88) | 72 (5.03) | 0.86 (0.01) | 0.98 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 0.91 (0.01) | 56 (0.49) |
| 0.100 | 0.100 | 750 | 449 (3.03) | 16 (4.36) | 51 (3.03) | 0.9 (0.01) | 0.97 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0.01) | 57 (0.58) |
| 0.100 | 0.100 | 1000 | 456 (2.59) | 24 (5.45) | 44 (2.59) | 0.91 (0.01) | 0.95 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0) | 57 (0.57) |
| 0.150 | 0.001 | 200 | 376 (7.4) | 2 (1.3) | 124 (7.4) | 0.75 (0.01) | 0.99 (0) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 57 (1.15) |
| 0.150 | 0.001 | 250 | 397 (8.76) | 4 (1.67) | 103 (8.76) | 0.79 (0.02) | 0.99 (0) | 0.86 (0.02) | 0.87 (0.01) | 0.88 (0.01) | 57 (0.64) |
| 0.150 | 0.001 | 500 | 441 (4.9) | 6 (2.59) | 59 (4.9) | 0.88 (0.01) | 0.99 (0) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0.01) | 57 (0.65) |
| 0.150 | 0.001 | 750 | 459 (3.36) | 12 (4.44) | 41 (3.36) | 0.92 (0.01) | 0.98 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.74) |
| 0.150 | 0.001 | 1000 | 465 (2.49) | 18 (5.15) | 35 (2.49) | 0.93 (0) | 0.96 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0) | 56 (1.1) |
| 0.150 | 0.010 | 200 | 377 (7.5) | 3 (1.3) | 123 (7.5) | 0.75 (0.02) | 0.99 (0) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 57 (1) |
| 0.150 | 0.010 | 250 | 398 (8.6) | 4 (2.07) | 102 (8.6) | 0.8 (0.02) | 0.99 (0) | 0.86 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 56 (0.52) |
| 0.150 | 0.010 | 500 | 444 (4.64) | 8 (2.83) | 56 (4.64) | 0.89 (0.01) | 0.98 (0.01) | 0.92 (0.01) | 0.92 (0.01) | 0.93 (0.01) | 57 (0.62) |
| 0.150 | 0.010 | 750 | 463 (3.63) | 14 (4.44) | 37 (3.63) | 0.93 (0.01) | 0.97 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0) | 57 (0.64) |
| 0.150 | 0.010 | 1000 | 469 (3.58) | 22 (4.83) | 31 (3.58) | 0.94 (0.01) | 0.96 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0) | 57 (0.72) |
| 0.150 | 0.050 | 200 | 377 (7.5) | 3 (1.3) | 123 (7.5) | 0.75 (0.02) | 0.99 (0) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 56 (0.45) |
| 0.150 | 0.050 | 250 | 399 (7.83) | 4 (2.07) | 101 (7.83) | 0.8 (0.02) | 0.99 (0) | 0.86 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 57 (1.04) |
| 0.150 | 0.050 | 500 | 445 (4.55) | 8 (3.13) | 55 (4.55) | 0.89 (0.01) | 0.98 (0.01) | 0.92 (0.01) | 0.92 (0.01) | 0.93 (0.01) | 57 (0.61) |
| 0.150 | 0.050 | 750 | 465 (4.16) | 17 (4.6) | 35 (4.16) | 0.93 (0.01) | 0.97 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.47) |
| 0.150 | 0.050 | 1000 | 376 (210.44) | 19 (11.56) | 124 (210.44) | 0.75 (0.42) | 0.95 (0.01) | 0.93 (0.01) | 0.94 (0) | 0.95 (0) | 54 (6.58) |
| 0.150 | 0.100 | 200 | 377 (7.5) | 3 (1.3) | 123 (7.5) | 0.75 (0.02) | 0.99 (0) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 56 (0.47) |
| 0.150 | 0.100 | 250 | 399 (7.83) | 4 (2.07) | 101 (7.83) | 0.8 (0.02) | 0.99 (0) | 0.86 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 56 (0.56) |
| 0.150 | 0.100 | 500 | 445 (4.55) | 9 (3.11) | 55 (4.55) | 0.89 (0.01) | 0.98 (0.01) | 0.92 (0.01) | 0.92 (0.01) | 0.93 (0.01) | 57 (0.46) |
| 0.150 | 0.100 | 750 | 465 (4.44) | 17 (4.6) | 35 (4.44) | 0.93 (0.01) | 0.97 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.62) |
| 0.150 | 0.100 | 1000 | 472 (2.95) | 26 (5.4) | 28 (2.95) | 0.94 (0.01) | 0.95 (0.01) | 0.93 (0) | 0.93 (0) | 0.94 (0) | 56 (0.28) |
| 0.200 | 0.001 | 200 | 384 (7.97) | 2 (1.3) | 116 (7.97) | 0.77 (0.02) | 0.99 (0) | 0.84 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 56 (0.84) |
| 0.200 | 0.001 | 250 | 407 (7.3) | 4 (1.67) | 93 (7.3) | 0.81 (0.01) | 0.99 (0) | 0.87 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 57 (0.32) |
| 0.200 | 0.001 | 500 | 453 (3.36) | 7 (2.95) | 47 (3.36) | 0.91 (0.01) | 0.99 (0.01) | 0.93 (0.01) | 0.93 (0) | 0.94 (0) | 57 (0.66) |
| 0.200 | 0.001 | 750 | 469 (3.51) | 13 (5.05) | 31 (3.51) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.95 (0) | 0.96 (0) | 56 (0.64) |
| 0.200 | 0.001 | 1000 | 474 (2.88) | 19 (5.02) | 26 (2.88) | 0.95 (0.01) | 0.96 (0.01) | 0.94 (0) | 0.95 (0) | 0.95 (0) | 57 (0.93) |
| 0.200 | 0.010 | 200 | 385 (7.69) | 3 (1.3) | 115 (7.69) | 0.77 (0.02) | 0.99 (0) | 0.84 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 57 (0.85) |
| 0.200 | 0.010 | 250 | 408 (7.12) | 4 (2.07) | 92 (7.12) | 0.82 (0.01) | 0.99 (0) | 0.87 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 57 (1.02) |
| 0.200 | 0.010 | 500 | 454 (3.7) | 9 (3.24) | 46 (3.7) | 0.91 (0.01) | 0.98 (0.01) | 0.93 (0.01) | 0.93 (0.01) | 0.94 (0) | 56 (0.55) |
| 0.200 | 0.010 | 750 | 471 (3.78) | 15 (5.05) | 29 (3.78) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.95 (0) | 0.96 (0) | 57 (1.16) |
| 0.200 | 0.010 | 1000 | 476 (3.39) | 22 (4.72) | 24 (3.39) | 0.95 (0.01) | 0.95 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (1.25) |
| 0.200 | 0.050 | 200 | 385 (7.92) | 3 (1.3) | 115 (7.92) | 0.77 (0.02) | 0.99 (0) | 0.84 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 57 (1.33) |
| 0.200 | 0.050 | 250 | 408 (7.48) | 4 (2.07) | 92 (7.48) | 0.82 (0.01) | 0.99 (0) | 0.87 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 57 (0.76) |
| 0.200 | 0.050 | 500 | 454 (3.46) | 9 (3.58) | 46 (3.46) | 0.91 (0.01) | 0.98 (0.01) | 0.93 (0.01) | 0.93 (0.01) | 0.94 (0) | 57 (0.59) |
| 0.200 | 0.050 | 750 | 471 (4.06) | 18 (5.13) | 29 (4.06) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (0.47) |
| 0.200 | 0.050 | 1000 | 476 (3.65) | 26 (5.07) | 24 (3.65) | 0.95 (0.01) | 0.95 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (0.45) |
| 0.200 | 0.100 | 200 | 385 (7.92) | 3 (1.3) | 115 (7.92) | 0.77 (0.02) | 0.99 (0) | 0.84 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 56 (0.74) |
| 0.200 | 0.100 | 250 | 408 (7.48) | 4 (2.07) | 92 (7.48) | 0.82 (0.01) | 0.99 (0) | 0.87 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 57 (0.97) |
| 0.200 | 0.100 | 500 | 454 (3.46) | 10 (3.49) | 46 (3.46) | 0.91 (0.01) | 0.98 (0.01) | 0.93 (0.01) | 0.93 (0.01) | 0.94 (0) | 56 (0.63) |
| 0.200 | 0.100 | 750 | 471 (3.96) | 18 (5.13) | 29 (3.96) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 56 (0.6) |
| 0.200 | 0.100 | 1000 | 477 (3.9) | 27 (4.87) | 23 (3.9) | 0.95 (0.01) | 0.95 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (0.7) |
| 0.300 | 0.001 | 200 | 392 (7.21) | 3 (1.82) | 108 (7.21) | 0.78 (0.01) | 0.99 (0) | 0.85 (0.01) | 0.86 (0.01) | 0.88 (0.01) | 58 (0.99) |
| 0.300 | 0.001 | 250 | 414 (6.76) | 4 (2.12) | 86 (6.76) | 0.83 (0.01) | 0.99 (0) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (0.65) |
| 0.300 | 0.001 | 500 | 460 (3.27) | 7 (2.95) | 40 (3.27) | 0.92 (0.01) | 0.99 (0.01) | 0.94 (0.01) | 0.94 (0.01) | 0.95 (0) | 57 (1.13) |
| 0.300 | 0.001 | 750 | 476 (2.28) | 14 (4.58) | 24 (2.28) | 0.95 (0) | 0.97 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.79) |
| 0.300 | 0.001 | 1000 | 481 (2.88) | 19 (5.03) | 19 (2.88) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0) | 0.95 (0) | 0.96 (0) | 58 (0.33) |
| 0.300 | 0.010 | 200 | 392 (7.46) | 3 (1.79) | 108 (7.46) | 0.78 (0.01) | 0.99 (0) | 0.85 (0.01) | 0.86 (0.01) | 0.88 (0.01) | 56 (0.27) |
| 0.300 | 0.010 | 250 | 414 (6.76) | 5 (2.49) | 86 (6.76) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (1.08) |
| 0.300 | 0.010 | 500 | 461 (3.21) | 9 (3.24) | 39 (3.21) | 0.92 (0.01) | 0.98 (0.01) | 0.94 (0.01) | 0.94 (0.01) | 0.95 (0) | 57 (0.8) |
| 0.300 | 0.010 | 750 | 476 (2.61) | 16 (4.58) | 24 (2.61) | 0.95 (0.01) | 0.97 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.66) |
| 0.300 | 0.010 | 1000 | 481 (2.74) | 23 (4.69) | 19 (2.74) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.95 (0) | 0.96 (0) | 57 (0.89) |
| 0.300 | 0.050 | 200 | 393 (7.37) | 3 (1.79) | 107 (7.37) | 0.79 (0.01) | 0.99 (0) | 0.85 (0.01) | 0.86 (0.01) | 0.88 (0.01) | 58 (0.95) |
| 0.300 | 0.050 | 250 | 414 (6.76) | 5 (2.49) | 86 (6.76) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (0.73) |
| 0.300 | 0.050 | 500 | 461 (3.21) | 9 (3.58) | 39 (3.21) | 0.92 (0.01) | 0.98 (0.01) | 0.94 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.33) |
| 0.300 | 0.050 | 750 | 476 (2.61) | 19 (4.67) | 24 (2.61) | 0.95 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 56 (0.36) |
| 0.300 | 0.050 | 1000 | 482 (2.7) | 27 (5.02) | 18 (2.7) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.95 (0) | 0.95 (0) | 57 (0.51) |
| 0.300 | 0.100 | 200 | 393 (7.37) | 3 (1.79) | 107 (7.37) | 0.79 (0.01) | 0.99 (0) | 0.85 (0.01) | 0.86 (0.01) | 0.88 (0.01) | 57 (0.98) |
| 0.300 | 0.100 | 250 | 414 (6.76) | 5 (2.49) | 86 (6.76) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 56 (0.37) |
| 0.300 | 0.100 | 500 | 461 (3.21) | 10 (3.49) | 39 (3.21) | 0.92 (0.01) | 0.98 (0.01) | 0.94 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (1.16) |
| 0.300 | 0.100 | 750 | 477 (2.7) | 19 (4.67) | 23 (2.7) | 0.95 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.64) |
| 0.300 | 0.100 | 1000 | 482 (2.59) | 27 (4.83) | 18 (2.59) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.95 (0) | 0.95 (0) | 57 (0.34) |
| 0.400 | 0.001 | 200 | 394 (6.43) | 3 (2.17) | 106 (6.43) | 0.79 (0.01) | 0.99 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 58 (0.68) |
| 0.400 | 0.001 | 250 | 417 (6.42) | 4 (2.39) | 83 (6.42) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.91 (0.01) | 57 (1.14) |
| 0.400 | 0.001 | 500 | 463 (2.92) | 7 (2.95) | 37 (2.92) | 0.93 (0.01) | 0.99 (0.01) | 0.94 (0) | 0.95 (0) | 0.95 (0) | 56 (1.09) |
| 0.400 | 0.001 | 750 | 477 (2.59) | 14 (4.51) | 23 (2.59) | 0.95 (0.01) | 0.97 (0.01) | 0.95 (0.01) | 0.96 (0) | 0.96 (0) | 57 (1) |
| 0.400 | 0.001 | 1000 | 482 (2.61) | 21 (4.93) | 18 (2.61) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0) | 0.96 (0) | 0.96 (0) | 58 (0.72) |
| 0.400 | 0.010 | 200 | 394 (6.43) | 3 (2.07) | 106 (6.43) | 0.79 (0.01) | 0.99 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 58 (4.01) |
| 0.400 | 0.010 | 250 | 417 (6.42) | 5 (2.74) | 83 (6.42) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (0.97) |
| 0.400 | 0.010 | 500 | 463 (2.59) | 9 (3.24) | 37 (2.59) | 0.93 (0.01) | 0.98 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (1.27) |
| 0.400 | 0.010 | 750 | 478 (2.7) | 17 (4.22) | 22 (2.7) | 0.96 (0.01) | 0.97 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 58 (0.93) |
| 0.400 | 0.010 | 1000 | 483 (2.86) | 24 (4.66) | 17 (2.86) | 0.97 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.95 (0) | 0.96 (0) | 56 (0.63) |
| 0.400 | 0.050 | 200 | 394 (6.43) | 3 (2.07) | 106 (6.43) | 0.79 (0.01) | 0.99 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 57 (0.42) |
| 0.400 | 0.050 | 250 | 417 (6.42) | 5 (2.74) | 83 (6.42) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (0.95) |
| 0.400 | 0.050 | 500 | 463 (2.59) | 9 (3.58) | 37 (2.59) | 0.93 (0.01) | 0.98 (0.01) | 0.94 (0) | 0.94 (0.01) | 0.95 (0) | 57 (0.83) |
| 0.400 | 0.050 | 750 | 478 (2.7) | 19 (4.32) | 22 (2.7) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.77) |
| 0.400 | 0.050 | 1000 | 483 (2.86) | 28 (5.13) | 17 (2.86) | 0.97 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.95 (0) | 0.96 (0) | 57 (0.45) |
| 0.400 | 0.100 | 200 | 394 (6.43) | 3 (2.07) | 106 (6.43) | 0.79 (0.01) | 0.99 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 57 (0.97) |
| 0.400 | 0.100 | 250 | 417 (6.42) | 5 (2.74) | 83 (6.42) | 0.83 (0.01) | 0.99 (0.01) | 0.88 (0.01) | 0.89 (0.01) | 0.9 (0.01) | 57 (0.96) |
| 0.400 | 0.100 | 500 | 463 (2.59) | 10 (3.49) | 37 (2.59) | 0.93 (0.01) | 0.98 (0.01) | 0.94 (0) | 0.94 (0.01) | 0.95 (0) | 56 (0.74) |
| 0.400 | 0.100 | 750 | 478 (2.7) | 19 (4.32) | 22 (2.7) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (1.04) |
| 0.400 | 0.100 | 1000 | 483 (2.86) | 28 (4.92) | 17 (2.86) | 0.97 (0.01) | 0.94 (0.01) | 0.95 (0) | 0.95 (0) | 0.95 (0) | 57 (0.89) |

# Table of Best-Performing Parameters

## Best Performance Times

Because we used a slower computer to develop the package, we will report computing times from the faster machine.

lilyCompTimes\_df <- read\_csv("../resultsData/DMRMethodTimes\_Lily.csv")

## Parsed with column specification:  
## cols(  
## Method = col\_character(),  
## Delta = col\_double(),  
## Mean = col\_double(),  
## StdDev = col\_double()  
## )

res3\_ls <- list()

## DMRcate

This method shows best performance with lambda = 500 and C = 5.

resDMRc3\_df <-   
 dmrcate\_tab %>%   
 filter(lambda == 500) %>%   
 filter(C == 5) %>%   
 ungroup() %>%   
 select(-one\_of("lambda", "C"))  
DMRcTimes\_df <-  
 lilyCompTimes\_df %>%   
 filter(Method == "DMRcate") %>%   
 mutate(time = paste0(round(Mean, 0), " (", round(StdDev, 2), ")")) %>%   
 select(-one\_of("Mean", "StdDev")) %>%   
 rename("delta" = "Delta")  
  
res3\_ls$DMRcate <-  
 resDMRc3\_df %>%  
 left\_join(DMRcTimes\_df, by = "delta") %>%   
 select(delta, Method, everything())  
  
res3\_ls$DMRcate %>%   
 select(-Method) %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | 32 (4.34) | 0 (0.45) | 468 (4.34) | 0.06 (0.01) | 0.99 (0.01) | 0.25 (0.01) | 0.23 (0.02) | 0.12 (0.02) | 21 (0.24) |
| 0.050 | 178 (9.63) | 3 (1.22) | 322 (9.63) | 0.36 (0.02) | 0.98 (0.01) | 0.52 (0.02) | 0.55 (0.02) | 0.52 (0.02) | 20 (0.43) |
| 0.100 | 326 (9.29) | 8 (3.35) | 174 (9.29) | 0.65 (0.02) | 0.98 (0.01) | 0.75 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 21 (1.69) |
| 0.150 | 376 (6.69) | 10 (3.03) | 124 (6.69) | 0.75 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 20 (0.47) |
| 0.200 | 385 (5.79) | 10 (2.86) | 115 (5.79) | 0.77 (0.01) | 0.97 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 20 (1.43) |
| 0.300 | 398 (1.79) | 10 (2.59) | 102 (1.79) | 0.8 (0) | 0.98 (0.01) | 0.85 (0) | 0.86 (0) | 0.88 (0) | 21 (1.2) |
| 0.400 | 401 (2.86) | 10 (4.44) | 99 (2.86) | 0.8 (0.01) | 0.98 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 20 (0.95) |

## ProbeLasso

This method shows best performance with adjPvalProbe = 0.05 and meanLassoRadius = 1000. The minDmrSep parameter had no discernable effect, so we left this parameter at its default value.

resPL3\_df <-   
 pl\_tab %>%   
 filter(adjPval == 0.05) %>%   
 filter(mLassoRad == 1000) %>%   
 filter(minDmrSep == 1000) %>%   
 ungroup() %>%   
 select(-one\_of("adjPval", "mLassoRad", "minDmrSep"))  
PLtimes\_df <-   
 lilyCompTimes\_df %>%   
 filter(Method == "ProbeLasso") %>%   
 mutate(time = paste0(round(Mean, 0), " (", round(StdDev, 2), ")")) %>%   
 select(-one\_of("Mean", "StdDev")) %>%   
 rename("delta" = "Delta")  
  
res3\_ls$ProbeLasso <-   
 resPL3\_df %>%  
 left\_join(PLtimes\_df, by = "delta") %>%   
 select(delta, Method, everything())  
  
res3\_ls$ProbeLasso %>%   
 select(-Method) %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) | 7 (0.42) |
| 0.050 | 212 (10.92) | 21 (5.03) | 288 (10.92) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) | 17 (0.83) |
| 0.100 | 362 (7.02) | 36 (7.36) | 138 (7.02) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) | 18 (0.16) |
| 0.150 | 406 (7.6) | 40 (8.53) | 94 (7.6) | 0.81 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 18 (0.09) |
| 0.200 | 415 (9.31) | 41 (7.45) | 85 (9.31) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.87 (0.01) | 19 (1.92) |
| 0.300 | 425 (8.56) | 42 (7.48) | 75 (8.56) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) | 18 (0.06) |
| 0.400 | 427 (8.04) | 42 (7.48) | 73 (8.04) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) | 19 (0.22) |

## Bumphunter

This method shows best performance with pickCutoffQ = 0.95 and maxGap = 250.

resBump3\_df <-   
 bump\_tab %>%   
 filter(cutoffQ == 0.95) %>%   
 filter(maxGap == 250) %>%   
 ungroup() %>%   
 select(-one\_of("cutoffQ", "maxGap"))  
BumpTimes\_df <-  
 lilyCompTimes\_df %>%   
 filter(Method == "Bumphunter") %>%   
 mutate(time = paste0(round(Mean, 0), " (", round(StdDev, 2), ")")) %>%   
 select(-one\_of("Mean", "StdDev")) %>%   
 rename("delta" = "Delta")  
  
res3\_ls$Bumphunter <-   
 resBump3\_df %>%  
 left\_join(BumpTimes\_df, by = "delta") %>%   
 select(delta, Method, everything())  
  
res3\_ls$Bumphunter %>%   
 select(-Method) %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | 144 (7.87) | 69 (3.27) | 356 (7.87) | 0.29 (0.02) | 0.63 (0.02) | 0.36 (0.02) | 0.38 (0.02) | 0.44 (0.02) | 157 (4.42) |
| 0.050 | 248 (10.92) | 68 (3.36) | 252 (10.92) | 0.5 (0.02) | 0.75 (0.02) | 0.56 (0.02) | 0.58 (0.02) | 0.63 (0.02) | 160 (3.88) |
| 0.100 | 280 (11.73) | 66 (2.88) | 220 (11.73) | 0.56 (0.02) | 0.79 (0.02) | 0.64 (0.02) | 0.65 (0.02) | 0.7 (0.02) | 163 (6.92) |
| 0.150 | 281 (11.95) | 63 (2.86) | 219 (11.95) | 0.56 (0.02) | 0.8 (0.02) | 0.66 (0.02) | 0.65 (0.02) | 0.7 (0.02) | 160 (10.11) |
| 0.200 | 280 (11.78) | 62 (3.16) | 220 (11.78) | 0.56 (0.02) | 0.81 (0.02) | 0.67 (0.02) | 0.66 (0.02) | 0.71 (0.02) | 157 (6.39) |
| 0.300 | 280 (11.78) | 57 (5.15) | 220 (11.78) | 0.56 (0.02) | 0.82 (0.02) | 0.68 (0.02) | 0.67 (0.02) | 0.71 (0.02) | 155 (9.56) |
| 0.400 | 280 (11.83) | 52 (6.15) | 220 (11.83) | 0.56 (0.02) | 0.84 (0.03) | 0.68 (0.02) | 0.68 (0.03) | 0.72 (0.02) | 156 (12.24) |

## Comb-p

This method shows best performance with seed = 0.05 and dist = 750.

res3\_ls$Comb\_p <-   
 comb\_tab %>%   
 rename("Method" = "method") %>%   
 ungroup() %>%   
 filter(combSeed == 0.05) %>%   
 filter(combDist == 750) %>%   
 select(-one\_of("combSeed", "combDist"))  
   
res3\_ls$Comb\_p %>%   
 select(-Method) %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | 198 (8.11) | 12 (2.86) | 302 (8.11) | 0.4 (0.02) | 0.95 (0.02) | 0.55 (0.01) | 0.57 (0.02) | 0.55 (0.02) | 55 (0.58) |
| 0.050 | 352 (10.55) | 13 (3.58) | 148 (10.55) | 0.7 (0.02) | 0.97 (0.01) | 0.78 (0.02) | 0.8 (0.02) | 0.81 (0.02) | 56 (0.37) |
| 0.100 | 448 (3.11) | 16 (4.36) | 52 (3.11) | 0.9 (0.01) | 0.97 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0) | 57 (0.53) |
| 0.150 | 465 (4.16) | 17 (4.6) | 35 (4.16) | 0.93 (0.01) | 0.97 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.47) |
| 0.200 | 471 (4.06) | 18 (5.13) | 29 (4.06) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (0.47) |
| 0.300 | 476 (2.61) | 19 (4.67) | 24 (2.61) | 0.95 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 56 (0.36) |
| 0.400 | 478 (2.7) | 19 (4.32) | 22 (2.7) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.77) |

## Save Combined Table

res3\_df <-  
 res3\_ls %>%   
 bind\_rows() %>%   
 arrange(delta)  
  
# write\_csv(res3\_df, path = "../resultsData/Best\_params\_results.csv")  
res3\_df %>%   
 kable()

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| delta | Method | TP | FP | FN | Pwr | Precis | AuPR | MCC | F1 | time |
| 0.025 | DMRcate | 32 (4.34) | 0 (0.45) | 468 (4.34) | 0.06 (0.01) | 0.99 (0.01) | 0.25 (0.01) | 0.23 (0.02) | 0.12 (0.02) | 21 (0.24) |
| 0.025 | ProbeLasso | 0 (0) | 0 (0) | 500 (0) | 0 (0) | NaN (NA) | NaN (NA) | NaN (NA) | NaN (NA) | 7 (0.42) |
| 0.025 | Bumphunter | 144 (7.87) | 69 (3.27) | 356 (7.87) | 0.29 (0.02) | 0.63 (0.02) | 0.36 (0.02) | 0.38 (0.02) | 0.44 (0.02) | 157 (4.42) |
| 0.025 | Comb-p | 198 (8.11) | 12 (2.86) | 302 (8.11) | 0.4 (0.02) | 0.95 (0.02) | 0.55 (0.01) | 0.57 (0.02) | 0.55 (0.02) | 55 (0.58) |
| 0.050 | DMRcate | 178 (9.63) | 3 (1.22) | 322 (9.63) | 0.36 (0.02) | 0.98 (0.01) | 0.52 (0.02) | 0.55 (0.02) | 0.52 (0.02) | 20 (0.43) |
| 0.050 | ProbeLasso | 212 (10.92) | 21 (5.03) | 288 (10.92) | 0.42 (0.02) | 0.93 (0.01) | 0.57 (0.02) | 0.58 (0.02) | 0.57 (0.02) | 17 (0.83) |
| 0.050 | Bumphunter | 248 (10.92) | 68 (3.36) | 252 (10.92) | 0.5 (0.02) | 0.75 (0.02) | 0.56 (0.02) | 0.58 (0.02) | 0.63 (0.02) | 160 (3.88) |
| 0.050 | Comb-p | 352 (10.55) | 13 (3.58) | 148 (10.55) | 0.7 (0.02) | 0.97 (0.01) | 0.78 (0.02) | 0.8 (0.02) | 0.81 (0.02) | 56 (0.37) |
| 0.100 | DMRcate | 326 (9.29) | 8 (3.35) | 174 (9.29) | 0.65 (0.02) | 0.98 (0.01) | 0.75 (0.01) | 0.77 (0.01) | 0.78 (0.01) | 21 (1.69) |
| 0.100 | ProbeLasso | 362 (7.02) | 36 (7.36) | 138 (7.02) | 0.72 (0.01) | 0.93 (0.01) | 0.79 (0.01) | 0.79 (0.01) | 0.81 (0.01) | 18 (0.16) |
| 0.100 | Bumphunter | 280 (11.73) | 66 (2.88) | 220 (11.73) | 0.56 (0.02) | 0.79 (0.02) | 0.64 (0.02) | 0.65 (0.02) | 0.7 (0.02) | 163 (6.92) |
| 0.100 | Comb-p | 448 (3.11) | 16 (4.36) | 52 (3.11) | 0.9 (0.01) | 0.97 (0.01) | 0.91 (0.01) | 0.92 (0.01) | 0.93 (0) | 57 (0.53) |
| 0.150 | DMRcate | 376 (6.69) | 10 (3.03) | 124 (6.69) | 0.75 (0.01) | 0.98 (0.01) | 0.82 (0.01) | 0.83 (0.01) | 0.85 (0.01) | 20 (0.47) |
| 0.150 | ProbeLasso | 406 (7.6) | 40 (8.53) | 94 (7.6) | 0.81 (0.02) | 0.93 (0.01) | 0.85 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 18 (0.09) |
| 0.150 | Bumphunter | 281 (11.95) | 63 (2.86) | 219 (11.95) | 0.56 (0.02) | 0.8 (0.02) | 0.66 (0.02) | 0.65 (0.02) | 0.7 (0.02) | 160 (10.11) |
| 0.150 | Comb-p | 465 (4.16) | 17 (4.6) | 35 (4.16) | 0.93 (0.01) | 0.97 (0.01) | 0.93 (0.01) | 0.94 (0.01) | 0.95 (0.01) | 57 (0.47) |
| 0.200 | DMRcate | 385 (5.79) | 10 (2.86) | 115 (5.79) | 0.77 (0.01) | 0.97 (0.01) | 0.83 (0.01) | 0.84 (0.01) | 0.86 (0.01) | 20 (1.43) |
| 0.200 | ProbeLasso | 415 (9.31) | 41 (7.45) | 85 (9.31) | 0.83 (0.02) | 0.93 (0.01) | 0.86 (0.02) | 0.85 (0.01) | 0.87 (0.01) | 19 (1.92) |
| 0.200 | Bumphunter | 280 (11.78) | 62 (3.16) | 220 (11.78) | 0.56 (0.02) | 0.81 (0.02) | 0.67 (0.02) | 0.66 (0.02) | 0.71 (0.02) | 157 (6.39) |
| 0.200 | Comb-p | 471 (4.06) | 18 (5.13) | 29 (4.06) | 0.94 (0.01) | 0.97 (0.01) | 0.94 (0) | 0.94 (0) | 0.95 (0) | 57 (0.47) |
| 0.300 | DMRcate | 398 (1.79) | 10 (2.59) | 102 (1.79) | 0.8 (0) | 0.98 (0.01) | 0.85 (0) | 0.86 (0) | 0.88 (0) | 21 (1.2) |
| 0.300 | ProbeLasso | 425 (8.56) | 42 (7.48) | 75 (8.56) | 0.85 (0.02) | 0.93 (0.01) | 0.87 (0.01) | 0.87 (0.01) | 0.89 (0.01) | 18 (0.06) |
| 0.300 | Bumphunter | 280 (11.78) | 57 (5.15) | 220 (11.78) | 0.56 (0.02) | 0.82 (0.02) | 0.68 (0.02) | 0.67 (0.02) | 0.71 (0.02) | 155 (9.56) |
| 0.300 | Comb-p | 476 (2.61) | 19 (4.67) | 24 (2.61) | 0.95 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 56 (0.36) |
| 0.400 | DMRcate | 401 (2.86) | 10 (4.44) | 99 (2.86) | 0.8 (0.01) | 0.98 (0.01) | 0.85 (0.01) | 0.87 (0.01) | 0.88 (0.01) | 20 (0.95) |
| 0.400 | ProbeLasso | 427 (8.04) | 42 (7.48) | 73 (8.04) | 0.85 (0.02) | 0.93 (0.01) | 0.88 (0.01) | 0.87 (0.01) | 0.89 (0.01) | 19 (0.22) |
| 0.400 | Bumphunter | 280 (11.83) | 52 (6.15) | 220 (11.83) | 0.56 (0.02) | 0.84 (0.03) | 0.68 (0.02) | 0.68 (0.03) | 0.72 (0.02) | 156 (12.24) |
| 0.400 | Comb-p | 478 (2.7) | 19 (4.32) | 22 (2.7) | 0.96 (0.01) | 0.96 (0.01) | 0.95 (0.01) | 0.95 (0) | 0.96 (0) | 57 (0.77) |