

Data File

Variable: RDOAAs

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	4.08
Maximum	1575
Mean	933.254
Median	890.175
Standard Deviation	390.4904
Variance	152482.8
Coefficient of Variation	0.418418
Skewness	-0.240524

Gamma Statistics	
k hat	1.962956
k star (bias corrected)	1.701846
Theta hat	475.4331
Theta star	548.3776
nu hat	78.51823
nu star	68.07383
Approx. Chi Square Value (.05)	50.08024
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	48.86078

Log-transformed Statistics	
Minimum of log data	1.406097
Maximum of log data	7.362011
Mean of log data	6.562838
Standard Deviation of log data	1.259756
Variance of log data	1.586986

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.963555
Shapiro-Wilk 5% Critical Value	0.905

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	1084.235

Gamma Distribution Test	
A-D Test Statistic	1.984739
A-D 5% Critical Value	0.752808
K-S Test Statistic	0.269182
K-S 5% Critical Value	0.196209

Data do not follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	1268.568
Adjusted Gamma UCL	1300.228

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.484983
Shapiro-Wilk 5% Critical Value	0.905

Data not lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	3703.354
95% Chebyshev (MVUE) UCL	3562.997
97.5% Chebyshev (MVUE) UCL	4469.463
99% Chebyshev (MVUE) UCL	6250.039

95% Non-parametric UCLs	
CLT UCL	1076.877
Adj-CLT UCL (Adjusted for skewness)	1071.859
Mod-t UCL (Adjusted for skewness)	1083.453
Jackknife UCL	1084.235
Standard Bootstrap UCL	1077.561
Bootstrap-t UCL	1085.804
Hall's Bootstrap UCL	1085.651
Percentile Bootstrap UCL	1071.413
BCA Bootstrap UCL	1072.959
95% Chebyshev (Mean, Sd) UCL	1313.857
97.5% Chebyshev (Mean, Sd) UCL	1478.544
99% Chebyshev (Mean, Sd) UCL	1802.04

Data File

Variable: RDOASb

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	0.46
Maximum	259.2
Mean	69.9315
Median	40.23
Standard Deviation	68.2817
Variance	4662.39
Coefficient of Variation	0.976408
Skewness	1.38537

Gamma Statistics

k hat	0.973155
k star (bias corrected)	0.860515
Theta hat	71.86061
Theta star	81.26704
nu hat	38.92619
nu star	34.4206
Approx. Chi Square Value (.05)	21.99862
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	21.21416

Log-transformed Statistics

Minimum of log data	-0.776529
Maximum of log data	5.5576
Mean of log data	3.652466
Standard Deviation of log data	1.401319
Variance of log data	1.963694

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.83919
Shapiro-Wilk 5% Critical Value	0.905

Data not normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	96.33233
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.286037
A-D 5% Critical Value	0.769182
K-S Test Statistic	0.129895
K-S 5% Critical Value	0.199566

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	109.4198
Adjusted Gamma UCL	113.4659

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.876428
Shapiro-Wilk 5% Critical Value	0.905

Data not lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	288.0776
95% Chebyshev (MVUE) UCL	246.9525
97.5% Chebyshev (MVUE) UCL	312.9547
99% Chebyshev (MVUE) UCL	442.6033

95% Non-parametric UCLs

CLT UCL	95.04554
Adj-CLT UCL (Adjusted for skewness)	100.0994
Mod-t UCL (Adjusted for skewness)	97.12063
Jackknife UCL	96.33233
Standard Bootstrap UCL	93.94179
Bootstrap-t UCL	104.79
Hall's Bootstrap UCL	104.453
Percentile Bootstrap UCL	96.9835
BCA Bootstrap UCL	102.7645
95% Chebyshev (Mean, Sd) UCL	136.4843
97.5% Chebyshev (Mean, Sd) UCL	165.2817
99% Chebyshev (Mean, Sd) UCL	221.8487

Data File

Variable: RDOACd

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	38.37
Maximum	128.3
Mean	64.8165
Median	58.855
Standard Deviation	26.09451
Variance	680.9233
Coefficient of Variation	0.40259
Skewness	1.541141

Gamma Statistics	
k hat	8.106259
k star (bias corrected)	6.923654
Theta hat	7.995858
Theta star	9.361603
nu hat	324.2504
nu star	276.9462
Approx. Chi Square Value (.05)	239.3969
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	236.6417

Log-transformed Statistics	
Minimum of log data	3.647276
Maximum of log data	4.854371
Mean of log data	4.108613
Standard Deviation of log data	0.348053
Variance of log data	0.121141

RECOMMENDATION  
Data are Non-parametric (0.05)

Use Student's-t UCL  
or Modified-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.786497
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	74.90583

Gamma Distribution Test	
A-D Test Statistic	1.082032
A-D 5% Critical Value	0.743124
K-S Test Statistic	0.215912
K-S 5% Critical Value	0.194085

Data do not follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	74.98292
Adjusted Gamma UCL	75.85594

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.891635
Shapiro-Wilk 5% Critical Value	0.905
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	75.10941
95% Chebyshev (MVUE) UCL	86.72745
97.5% Chebyshev (MVUE) UCL	96.36388
99% Chebyshev (MVUE) UCL	115.2928

95% Non-parametric UCLs	
CLT UCL	74.41407
Adj-CLT UCL (Adjusted for skewness)	76.5626
Mod-t UCL (Adjusted for skewness)	75.24096
Jackknife UCL	74.90583
Standard Bootstrap UCL	74.13294
Bootstrap-t UCL	79.55897
Hall's Bootstrap UCL	76.44557
Percentile Bootstrap UCL	74.6715
BCA Bootstrap UCL	77.2295
95% Chebyshev (Mean, Sd) UCL	90.25028
97.5% Chebyshev (Mean, Sd) UCL	101.2555
99% Chebyshev (Mean, Sd) UCL	122.8731

Data File

Variable: RDOACu

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	672.7
Maximum	3514
Mean	1442.093
Median	1278.5
Standard Deviation	661.1214
Variance	437081.6
Coefficient of Variation	0.458446
Skewness	1.720195

Gamma Statistics	
k hat	6.144461
k star (bias corrected)	5.256125
Theta hat	234.698
Theta star	274.3642
nu hat	245.7785
nu star	210.245
Approx. Chi Square Value (.05)	177.684
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	175.321

Log-transformed Statistics	
Minimum of log data	6.511299
Maximum of log data	8.16451
Mean of log data	7.190275
Standard Deviation of log data	0.408049
Variance of log data	0.166504

**RECOMMENDATION**  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.858068
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	1697.712

Gamma Distribution Test	
A-D Test Statistic	0.299268
A-D 5% Critical Value	0.744454
K-S Test Statistic	0.138825
K-S 5% Critical Value	0.194328
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	1706.359
Adjusted Gamma UCL	1729.358

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.977338
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	1725.811
95% Chebyshev (MVUE) UCL	2020.322
97.5% Chebyshev (MVUE) UCL	2273.499
99% Chebyshev (MVUE) UCL	2770.817

95% Non-parametric UCLs	
CLT UCL	1685.253
Adj-CLT UCL (Adjusted for skewness)	1746.012
Mod-t UCL (Adjusted for skewness)	1707.189
Jackknife UCL	1697.712
Standard Bootstrap UCL	1686.641
Bootstrap-t UCL	1805.953
Hall's Bootstrap UCL	1932.579
Percentile Bootstrap UCL	1687.19
BCA Bootstrap UCL	1729.23
95% Chebyshev (Mean, Sd) UCL	2086.474
97.5% Chebyshev (Mean, Sd) UCL	2365.298
99% Chebyshev (Mean, Sd) UCL	2912.995

Data File

Variable: RDOAPb

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	1485
Maximum	6140
Mean	2794.95
Median	2397.75
Standard Deviation	1198.794
Variance	1437106
Coefficient of Variation	0.428914
Skewness	1.970998

Gamma Statistics	
k hat	7.642552
k star (bias corrected)	6.529502
Theta hat	365.709
Theta star	428.0495
nu hat	305.7021
nu star	261.1801
Approx. Chi Square Value (.05)	224.7501
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	222.0829

Log-transformed Statistics	
Minimum of log data	7.30317
Maximum of log data	8.72258
Mean of log data	7.868722
Standard Deviation of log data	0.354312
Variance of log data	0.125537

RECOMMENDATION  
Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.763036
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	3258.459

Gamma Distribution Test	
A-D Test Statistic	0.942013
A-D 5% Critical Value	0.743438
K-S Test Statistic	0.173994
K-S 5% Critical Value	0.194142

Data follow approximate gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	3247.986
Adjusted Gamma UCL	3286.994

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.907833
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	3243.231
95% Chebyshev (MVUE) UCL	3750.816
97.5% Chebyshev (MVUE) UCL	4173.319
99% Chebyshev (MVUE) UCL	5003.244

95% Non-parametric UCLs	
CLT UCL	3235.867
Adj-CLT UCL (Adjusted for skewness)	3362.102
Mod-t UCL (Adjusted for skewness)	3278.149
Jackknife UCL	3258.459
Standard Bootstrap UCL	3236.139
Bootstrap-t UCL	3653.353
Hall's Bootstrap UCL	5841.556
Percentile Bootstrap UCL	3248.775
BCA Bootstrap UCL	3369.275
95% Chebyshev (Mean, Sd) UCL	3963.39
97.5% Chebyshev (Mean, Sd) UCL	4468.974
99% Chebyshev (Mean, Sd) UCL	5462.098

Data File

Variable: RDOASe

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	1.02
Maximum	35.72
Mean	11.45125
Median	10.16
Standard Deviation	6.986551
Variance	48.81189
Coefficient of Variation	0.610113
Skewness	2.298742

Gamma Statistics

k hat	3.082074
k star (bias corrected)	2.653096
Theta hat	3.715436
Theta star	4.316183
nu hat	123.283
nu star	106.1239
Approx. Chi Square Value (.05)	83.34568
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	81.75116

Log-transformed Statistics

Minimum of log data	0.019803
Maximum of log data	3.575711
Mean of log data	2.267186
Standard Deviation of log data	0.670563
Variance of log data	0.449654

RECOMMENDATION

Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.780037
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	14.15257

Gamma Distribution Test

A-D Test Statistic	0.828896
A-D 5% Critical Value	0.747366
K-S Test Statistic	0.166879
K-S 5% Critical Value	0.194998
Data follow approximate gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	14.58085
Adjusted Gamma UCL	14.86524

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.820906
Shapiro-Wilk 5% Critical Value	0.905
Data not lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	16.8932
95% Chebyshev (MVUE) UCL	20.20444
97.5% Chebyshev (MVUE) UCL	23.78688
99% Chebyshev (MVUE) UCL	30.82391

95% Non-parametric UCLs

CLT UCL	14.02091
Adj-CLT UCL (Adjusted for skewness)	14.87894
Mod-t UCL (Adjusted for skewness)	14.28641
Jackknife UCL	14.15257
Standard Bootstrap UCL	13.95947
Bootstrap-t UCL	15.87728
Hall's Bootstrap UCL	27.45882
Percentile Bootstrap UCL	14.14475
BCA Bootstrap UCL	14.77575
95% Chebyshev (Mean, Sd) UCL	18.2609
97.5% Chebyshev (Mean, Sd) UCL	21.20744
99% Chebyshev (Mean, Sd) UCL	26.99534

Data File

Variable: RDOAAg

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	3.28
Maximum	60.25
Mean	18.9715
Median	15.875
Standard Deviation	14.25286
Variance	203.144
Coefficient of Variation	0.751277
Skewness	1.849256

Gamma Statistics

k hat	2.211806
k star (bias corrected)	1.913368
Theta hat	8.57738
Theta star	9.915236
nu hat	88.47224
nu star	76.53474
Approx. Chi Square Value (.05)	57.3795
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	56.06906

Log-transformed Statistics

Minimum of log data	1.187843
Maximum of log data	4.098503
Mean of log data	2.700164
Standard Deviation of log data	0.741633
Variance of log data	0.55002

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.802846
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	24.48231

Gamma Distribution Test

A-D Test Statistic	0.433507
A-D 5% Critical Value	0.751376
K-S Test Statistic	0.121925
K-S 5% Critical Value	0.195881
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	25.30484
Adjusted Gamma UCL	25.89626

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.946952
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	28.77388
95% Chebyshev (MVUE) UCL	34.22046
97.5% Chebyshev (MVUE) UCL	40.69189
99% Chebyshev (MVUE) UCL	53.40376

95% Non-parametric UCLs

CLT UCL	24.21371
Adj-CLT UCL (Adjusted for skewness)	25.62186
Mod-t UCL (Adjusted for skewness)	24.70195
Jackknife UCL	24.48231
Standard Bootstrap UCL	23.95656
Bootstrap-t UCL	28.58573
Hall's Bootstrap UCL	56.75756
Percentile Bootstrap UCL	24.303
BCA Bootstrap UCL	25.284
95% Chebyshev (Mean, Sd) UCL	32.86347
97.5% Chebyshev (Mean, Sd) UCL	38.87454
99% Chebyshev (Mean, Sd) UCL	50.68211

Data File

Variable: RDOATI

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	19
Minimum	1.59
Maximum	7.26
Mean	4.128
Median	4.175
Standard Deviation	1.485639
Variance	2.207122
Coefficient of Variation	0.359893
Skewness	0.662886

Gamma Statistics

k hat	8.115661
k star (bias corrected)	6.931646
Theta hat	0.508646
Theta star	0.59553
nu hat	324.6265
nu star	277.2658
Approx. Chi Square Value (.05)	239.6942
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	236.9373

Log-transformed Statistics

Minimum of log data	0.463734
Maximum of log data	1.98238
Mean of log data	1.35492
Standard Deviation of log data	0.370877
Variance of log data	0.13755

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.934675
Shapiro-Wilk 5% Critical Value	0.905
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	4.702416
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.357109
A-D 5% Critical Value	0.743118
K-S Test Statistic	0.113578
K-S 5% Critical Value	0.194084

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	4.775055
Adjusted Gamma UCL	4.830618

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.954981
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	4.878031
95% Chebyshev (MVUE) UCL	5.664167
97.5% Chebyshev (MVUE) UCL	6.324824
99% Chebyshev (MVUE) UCL	7.622555

95% Non-parametric UCLs

CLT UCL	4.674419
Adj-CLT UCL (Adjusted for skewness)	4.727033
Mod-t UCL (Adjusted for skewness)	4.710623
Jackknife UCL	4.702416
Standard Bootstrap UCL	4.664443
Bootstrap-t UCL	4.736248
Hall's Bootstrap UCL	4.763125
Percentile Bootstrap UCL	4.678
BCA Bootstrap UCL	4.7455
95% Chebyshev (Mean, Sd) UCL	5.576021
97.5% Chebyshev (Mean, Sd) UCL	6.202581
99% Chebyshev (Mean, Sd) UCL	7.433337

Data File

Variable: RDOAZn

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	1324
Maximum	4951
Mean	2992.7
Median	2872
Standard Deviation	1076.685
Variance	1159251
Coefficient of Variation	0.359771
Skewness	0.308716

Gamma Statistics

k hat	7.878346
k star (bias corrected)	6.729928
Theta hat	379.864
Theta star	444.6853
nu hat	315.1338
nu star	269.1971
Approx. Chi Square Value (.05)	232.1939
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	229.4816

Log-transformed Statistics

Minimum of log data	7.188413
Maximum of log data	8.507345
Mean of log data	7.939126
Standard Deviation of log data	0.376131
Variance of log data	0.141474

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.95496
Shapiro-Wilk 5% Critical Value	0.905
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	3408.996
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.249485
A-D 5% Critical Value	0.743278
K-S Test Statistic	0.095814
K-S 5% Critical Value	0.194113

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	3469.627
Adjusted Gamma UCL	3510.635

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.966052
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3545.869
95% Chebyshev (MVUE) UCL	4122.359
97.5% Chebyshev (MVUE) UCL	4608.335
99% Chebyshev (MVUE) UCL	5562.942

95% Non-parametric UCLs

CLT UCL	3388.705
Adj-CLT UCL (Adjusted for skewness)	3406.463
Mod-t UCL (Adjusted for skewness)	3411.766
Jackknife UCL	3408.996
Standard Bootstrap UCL	3374.673
Bootstrap-t UCL	3466.747
Hall's Bootstrap UCL	3374.333
Percentile Bootstrap UCL	3364.925
BCA Bootstrap UCL	3408.2
95% Chebyshev (Mean, Sd) UCL	4042.123
97.5% Chebyshev (Mean, Sd) UCL	4496.209
99% Chebyshev (Mean, Sd) UCL	5388.173

Data File

Variable: RDOAHg

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	0.192
Maximum	41.505
Mean	2.77755
Median	0.461
Standard Deviation	9.139124
Variance	83.52359
Coefficient of Variation	3.290355
Skewness	4.434428

Gamma Statistics

k hat	0.459989
k star (bias corrected)	0.424324
Theta hat	6.038301
Theta star	6.545828
nu hat	18.39955
nu star	16.97295
Approx. Chi Square Value (.05)	8.651583
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	8.183947

Log-transformed Statistics

Minimum of log data	-1.65026
Maximum of log data	3.725814
Mean of log data	-0.377436
Standard Deviation of log data	1.20429
Variance of log data	1.450315

RECOMMENDATION

Data are Non-parametric (0.05)

Use 99% Chebyshev (Mean, Sd) UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.286363
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	6.311154
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	3.599088
A-D 5% Critical Value	0.810968
K-S Test Statistic	0.334792
K-S 5% Critical Value	0.205954

Data do not follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	5.449085
Adjusted Gamma UCL	5.760449

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.784961
Shapiro-Wilk 5% Critical Value	0.905
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.148233
95% Chebyshev (MVUE) UCL	3.147308
97.5% Chebyshev (MVUE) UCL	3.930589
99% Chebyshev (MVUE) UCL	5.469191

95% Non-parametric UCLs

CLT UCL	6.138924
Adj-CLT UCL (Adjusted for skewness)	8.304097
Mod-t UCL (Adjusted for skewness)	6.648877
Jackknife UCL	6.311154
Standard Bootstrap UCL	6.03275
Bootstrap-t UCL	42.31839
Hall's Bootstrap UCL	30.04485
Percentile Bootstrap UCL	6.8413
BCA Bootstrap UCL	8.97135
95% Chebyshev (Mean, Sd) UCL	11.68527
97.5% Chebyshev (Mean, Sd) UCL	15.53964
99% Chebyshev (Mean, Sd) UCL	23.11082

Data File

Variable: RDONAs

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	3.95
Maximum	800.5
Mean	347.59
Median	206.9
Standard Deviation	317.6081
Variance	100874.9
Coefficient of Variation	0.913744
Skewness	0.681142

Gamma Statistics

k hat	0.697933
k star (bias corrected)	0.412507
Theta hat	498.0275
Theta star	842.6288
nu hat	6.979333
nu star	4.125067
Approx.Chi Square Value (.05)	0.771418
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	0.322861

Log-transformed Statistics

Minimum of log data	1.373716
Maximum of log data	6.685237
Mean of log data	4.984761
Standard Deviation of log data	2.110205
Variance of log data	4.452964

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.931194
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	650.3946
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.385489
A-D 5% Critical Value	0.700897
K-S Test Statistic	0.283648
K-S 5% Critical Value	0.367701

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1858.696
Adjusted Gamma UCL	4441.022

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.80235
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	46053947
95% Chebyshev (MVUE) UCL	2663.184
97.5% Chebyshev (MVUE) UCL	3548.906
99% Chebyshev (MVUE) UCL	5288.735

95% Non-parametric UCLs

CLT UCL	581.2228
Adj-CLT UCL (Adjusted for skewness)	627.4545
Mod-t UCL (Adjusted for skewness)	657.6058
Jackknife UCL	650.3946
Standard Bootstrap UCL	557.3852
Bootstrap-t UCL	1030.697
Hall's Bootstrap UCL	3192.375
Percentile Bootstrap UCL	563.06
BCA Bootstrap UCL	572.82
95% Chebyshev (Mean, Sd) UCL	966.7222
97.5% Chebyshev (Mean, Sd) UCL	1234.621
99% Chebyshev (Mean, Sd) UCL	1760.857

Data File

Variable: RDONSb

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	5.87
Maximum	203.7
Mean	63.724
Median	9.22
Standard Deviation	86.4027
Variance	7465.427
Coefficient of Variation	1.35589
Skewness	1.443015

Gamma Statistics

k hat	0.62605
k star (bias corrected)	0.383753
Theta hat	101.7874
Theta star	166.0546
nu hat	6.260501
nu star	3.837534
Approx. Chi Square Value (.05)	0.658304
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	0.26564

Log-transformed Statistics

Minimum of log data	1.769855
Maximum of log data	5.316648
Mean of log data	3.173744
Standard Deviation of log data	1.626602
Variance of log data	2.645833

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.772329
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	146.0995
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.581158
A-D 5% Critical Value	0.704552
K-S Test Statistic	0.360441
K-S 5% Critical Value	0.369124

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	371.4742
Adjusted Gamma UCL	920.5797

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.826259
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	46706.85
95% Chebyshev (MVUE) UCL	227.3701
97.5% Chebyshev (MVUE) UCL	299.8509
99% Chebyshev (MVUE) UCL	442.2254

95% Non-parametric UCLs

CLT UCL	127.2819
Adj-CLT UCL (Adjusted for skewness)	153.9265
Mod-t UCL (Adjusted for skewness)	150.2555
Jackknife UCL	146.0995
Standard Bootstrap UCL	120.1877
Bootstrap-t UCL	3291.601
Hall's Bootstrap UCL	2020.102
Percentile Bootstrap UCL	124.928
BCA Bootstrap UCL	136.776
95% Chebyshev (Mean, Sd) UCL	232.1539
97.5% Chebyshev (Mean, Sd) UCL	305.0336
99% Chebyshev (Mean, Sd) UCL	448.1918

Data File

Variable: RDONCd

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	10.3
Maximum	17.6
Mean	14.51
Median	15.9
Standard Deviation	3.008205
Variance	9.0493
Coefficient of Variation	0.207319
Skewness	-0.692627

Gamma Statistics

k hat	26.8116
k star (bias corrected)	10.85797
Theta hat	0.541184
Theta star	1.336345
nu hat	268.116
nu star	108.5797
Approx. Chi Square Value (.05)	85.52521
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	76.60193

Log-transformed Statistics

Minimum of log data	2.332144
Maximum of log data	2.867899
Mean of log data	2.656074
Standard Deviation of log data	0.221361
Variance of log data	0.049001

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.913917
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	17.37799

Gamma Distribution Test

A-D Test Statistic	0.389847
A-D 5% Critical Value	0.678592
K-S Test Statistic	0.307108
K-S 5% Critical Value	0.357092

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	18.42137
Adjusted Gamma UCL	20.56726

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.895831
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	18.69567
95% Chebyshev (MVUE) UCL	20.77687
97.5% Chebyshev (MVUE) UCL	23.4837
99% Chebyshev (MVUE) UCL	28.80075

95% Non-parametric UCLs

CLT UCL	16.72284
Adj-CLT UCL (Adjusted for skewness)	16.27758
Mod-t UCL (Adjusted for skewness)	17.30854
Jackknife UCL	17.37799
Standard Bootstrap UCL	16.5097
Bootstrap-t UCL	16.893
Hall's Bootstrap UCL	15.9067
Percentile Bootstrap UCL	16.376
BCA Bootstrap UCL	16.444
95% Chebyshev (Mean, Sd) UCL	20.37407
97.5% Chebyshev (Mean, Sd) UCL	22.91146
99% Chebyshev (Mean, Sd) UCL	27.89567

Data File

Variable: RDONCu

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	188.4
Maximum	793.1
Mean	466.52
Median	441.3
Standard Deviation	257.5811
Variance	66348.01
Coefficient of Variation	0.552133
Skewness	0.255844

Gamma Statistics

k hat	3.738362
k star (bias corrected)	1.628678
Theta hat	124.7926
Theta star	286.4409
nu hat	37.38362
nu star	16.28678
Approx.Chi Square Value (.05)	8.163605
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	5.823657

Log-transformed Statistics

Minimum of log data	5.238567
Maximum of log data	6.675949
Mean of log data	6.005631
Standard Deviation of log data	0.610975
Variance of log data	0.37329

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.937085
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	712.0953

Gamma Distribution Test

A-D Test Statistic	0.27159
A-D 5% Critical Value	0.681604
K-S Test Statistic	0.211895
K-S 5% Critical Value	0.358704
Data follow gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	930.7297
Adjusted Gamma UCL	1304.697

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.938483
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	1350.813
95% Chebyshev (MVUE) UCL	1020.623
97.5% Chebyshev (MVUE) UCL	1259.148
99% Chebyshev (MVUE) UCL	1727.684

95% Non-parametric UCLs

CLT UCL	655.9969
Adj-CLT UCL (Adjusted for skewness)	670.08
Mod-t UCL (Adjusted for skewness)	714.292
Jackknife UCL	712.0953
Standard Bootstrap UCL	637.8496
Bootstrap-t UCL	796.4511
Hall's Bootstrap UCL	613.5476
Percentile Bootstrap UCL	630.3
BCA Bootstrap UCL	644.64
95% Chebyshev (Mean, Sd) UCL	968.638
97.5% Chebyshev (Mean, Sd) UCL	1185.905
99% Chebyshev (Mean, Sd) UCL	1612.683

Data File

Variable: RDONPb

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	31.2
Maximum	2335
Mean	1482.74
Median	2069
Standard Deviation	1036.624
Variance	1074589
Coefficient of Variation	0.699127
Skewness	-0.828855

Gamma Statistics

k hat	0.874042
k star (bias corrected)	0.48295
Theta hat	1696.417
Theta star	3070.171
nu hat	8.740422
nu star	4.829502
Approx. Chi Square Value (.05)	1.07386
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	0.489145

Log-transformed Statistics

Minimum of log data	3.440418
Maximum of log data	7.755767
Mean of log data	6.630334
Standard Deviation of log data	1.845575
Variance of log data	3.406146

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.833197
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	2471.047

Gamma Distribution Test

A-D Test Statistic	0.699789
A-D 5% Critical Value	0.694821
K-S Test Statistic	0.352326
K-S 5% Critical Value	0.365549
Data follow approximate gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	6668.368
Adjusted Gamma UCL	14639.63

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.721296
Shapiro-Wilk 5% Critical Value	0.762
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	12569088
95% Chebyshev (MVUE) UCL	9659.068
97.5% Chebyshev (MVUE) UCL	12808.14
99% Chebyshev (MVUE) UCL	18993.88

95% Non-parametric UCLs

CLT UCL	2245.281
Adj-CLT UCL (Adjusted for skewness)	2061.665
Mod-t UCL (Adjusted for skewness)	2442.407
Jackknife UCL	2471.047
Standard Bootstrap UCL	2174.73
Bootstrap-t UCL	2348.836
Hall's Bootstrap UCL	1890.11
Percentile Bootstrap UCL	2209.2
BCA Bootstrap UCL	1977.3
95% Chebyshev (Mean, Sd) UCL	3503.491
97.5% Chebyshev (Mean, Sd) UCL	4377.872
99% Chebyshev (Mean, Sd) UCL	6095.424

Recommended UCL exceeds the maximum observation

Data File

Variable: RDONSe

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.23
Maximum	3.04
Mean	1.964
Median	2.22
Standard Deviation	1.07881
Variance	1.16383
Coefficient of Variation	0.549292
Skewness	-1.236916

Gamma Statistics

k hat	1.900652
k star (bias corrected)	0.893594
Theta hat	1.03333
Theta star	2.197866
nu hat	19.00652
nu star	8.93594
Approx. Chi Square Value (.05)	3.287548
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	1.980287

Log-transformed Statistics

Minimum of log data	-1.469676
Maximum of log data	1.111858
Mean of log data	0.389419
Standard Deviation of log data	1.058942
Variance of log data	1.121358

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.91848
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	2.992527
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.652324
A-D 5% Critical Value	0.684835
K-S Test Statistic	0.335896
K-S 5% Critical Value	0.360708

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	5.338381
Adjusted Gamma UCL	8.862444

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.729865
Shapiro-Wilk 5% Critical Value	0.762

Data not lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	39.72683
95% Chebyshev (MVUE) UCL	6.66157
97.5% Chebyshev (MVUE) UCL	8.572639
99% Chebyshev (MVUE) UCL	12.32656

95% Non-parametric UCLs

CLT UCL	2.757573
Adj-CLT UCL (Adjusted for skewness)	2.472409
Mod-t UCL (Adjusted for skewness)	2.948047
Jackknife UCL	2.992527
Standard Bootstrap UCL	2.662289
Bootstrap-t UCL	2.701036
Hall's Bootstrap UCL	2.486936
Percentile Bootstrap UCL	2.618
BCA Bootstrap UCL	2.506
95% Chebyshev (Mean, Sd) UCL	4.066987
97.5% Chebyshev (Mean, Sd) UCL	4.976951
99% Chebyshev (Mean, Sd) UCL	6.764399

Data File

Variable: RDONAg

Raw Statistics		Normal Distribution Test	
Number of Valid Samples	5	Shapiro-Wilk Test Statistic	0.797666
Number of Unique Samples	5	Shapiro-Wilk 5% Critical Value	0.762
Minimum	0.68	Data are normal at 5% significance level	
Maximum	7.03	95% UCL (Assuming Normal Distribution)	
Mean	4.926	Student's-t UCL	7.280243
Median	5.39	Gamma Distribution Test	
Standard Deviation	2.469338	A-D Test Statistic	0.918754
Variance	6.09763	A-D 5% Critical Value	0.684098
Coefficient of Variation	0.501287	K-S Test Statistic	0.438744
Skewness	-1.803372	K-S 5% Critical Value	0.360267
Gamma Statistics		Data do not follow gamma distribution at 5% significance level	
k hat	2.193529	95% UCLs (Assuming Gamma Distribution)	
k star (bias corrected)	1.010745	Approximate Gamma UCL	12.42192
Theta hat	2.245697	Adjusted Gamma UCL	19.77771
Theta star	4.873634	Lognormal Distribution Test	
nu hat	21.93529	Shapiro-Wilk Test Statistic	0.659257
nu star	10.10745	Shapiro-Wilk 5% Critical Value	0.762
Approx. Chi Square Value (.05)	4.00818	Data not lognormal at 5% significance level	
Adjusted Level of Significance	0.0086	95% UCLs (Assuming Lognormal Distribution)	
Adjusted Chi Square Value	2.517445	95% H-UCL	64.78417
Log-transformed Statistics		95% Chebyshev (MVUE) UCL	15.62956
Minimum of log data	-0.385662	97.5% Chebyshev (MVUE) UCL	20.00163
Maximum of log data	1.950187	99% Chebyshev (MVUE) UCL	28.58972
Mean of log data	1.349595	95% Non-parametric UCLs	
Standard Deviation of log data	0.976372	CLT UCL	6.742447
Variance of log data	0.953303	Adj-CLT UCL (Adjusted for skewness)	5.7908
RECOMMENDATION		Mod-t UCL (Adjusted for skewness)	7.131806
Data are normal (0.05)		Jackknife UCL	7.280243
Use Student's-t UCL		Standard Bootstrap UCL	6.544751
		Bootstrap-t UCL	6.55466
		Hall's Bootstrap UCL	6.024407
		Percentile Bootstrap UCL	6.35
		BCA Bootstrap UCL	6.042
		95% Chebyshev (Mean, Sd) UCL	9.739626
		97.5% Chebyshev (Mean, Sd) UCL	11.82249
		99% Chebyshev (Mean, Sd) UCL	15.91386

Recommended UCL exceeds the maximum observation

Data File

Variable: RDONTI

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.93
Maximum	2.87
Mean	1.672
Median	1.33
Standard Deviation	0.853768
Variance	0.72892
Coefficient of Variation	0.510627
Skewness	0.758295

Gamma Statistics

k hat	5.039206
k star (bias corrected)	2.149016
Theta hat	0.331798
Theta star	0.778031
nu hat	50.39206
nu star	21.49016
Approx. Chi Square Value (.05)	11.95527
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	9.008185

Log-transformed Statistics

Minimum of log data	-0.072571
Maximum of log data	1.054312
Mean of log data	0.41153
Standard Deviation of log data	0.502345
Variance of log data	0.25235

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.87338
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	2.485974
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.394209
A-D 5% Critical Value	0.680696
K-S Test Statistic	0.234228
K-S 5% Critical Value	0.358304

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	3.005499
Adjusted Gamma UCL	3.988766

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.893114
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.595867
95% Chebyshev (MVUE) UCL	3.283852
97.5% Chebyshev (MVUE) UCL	3.983609
99% Chebyshev (MVUE) UCL	5.358146

95% Non-parametric UCLs

CLT UCL	2.300033
Adj-CLT UCL (Adjusted for skewness)	2.438386
Mod-t UCL (Adjusted for skewness)	2.507555
Jackknife UCL	2.485974
Standard Bootstrap UCL	2.224949
Bootstrap-t UCL	4.048908
Hall's Bootstrap UCL	8.420044
Percentile Bootstrap UCL	2.244
BCA Bootstrap UCL	2.314
95% Chebyshev (Mean, Sd) UCL	3.3363
97.5% Chebyshev (Mean, Sd) UCL	4.056445
99% Chebyshev (Mean, Sd) UCL	5.471028

Data File

Variable: RDONZn

Raw Statistics	
Number of Valid Samples	5
Number of Unique Samples	5
Minimum	1050
Maximum	7862
Mean	3661.2
Median	1531
Standard Deviation	3224.671
Variance	10398506
Coefficient of Variation	0.880769
Skewness	0.705688

Gamma Statistics	
k hat	1.591895
k star (bias corrected)	0.770091
Theta hat	2299.901
Theta star	4754.242
nu hat	15.91895
nu star	7.700912
Approx. Chi Square Value (.05)	2.562412
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	1.458721

Log-transformed Statistics	
Minimum of log data	6.956545
Maximum of log data	8.969796
Mean of log data	7.859688
Standard Deviation of log data	0.935051
Variance of log data	0.874321

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.789669
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	6735.571

Gamma Distribution Test	
A-D Test Statistic	0.619475
A-D 5% Critical Value	0.686033
K-S Test Statistic	0.351695
K-S 5% Critical Value	0.361449

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	11003.14
Adjusted Gamma UCL	19328.29

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.825796
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	34885.17
95% Chebyshev (MVUE) UCL	9952.331
97.5% Chebyshev (MVUE) UCL	12697.2
99% Chebyshev (MVUE) UCL	18088.96

95% Non-parametric UCLs	
CLT UCL	6033.271
Adj-CLT UCL (Adjusted for skewness)	6519.576
Mod-t UCL (Adjusted for skewness)	6811.425
Jackknife UCL	6735.571
Standard Bootstrap UCL	5827.228
Bootstrap-t UCL	36409.9
Hall's Bootstrap UCL	56987.21
Percentile Bootstrap UCL	5925.2
BCA Bootstrap UCL	6002.6
95% Chebyshev (Mean, Sd) UCL	9947.242
97.5% Chebyshev (Mean, Sd) UCL	12667.22
99% Chebyshev (Mean, Sd) UCL	18010.08

Data File

Variable: RDONHg

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.11
Maximum	0.811
Mean	0.4684
Median	0.623
Standard Deviation	0.313688
Variance	0.0984
Coefficient of Variation	0.669702
Skewness	-0.358833

Gamma Statistics

k hat	1.96215
k star (bias corrected)	0.918193
Theta hat	0.238718
Theta star	0.510132
nu hat	19.6215
nu star	9.181934
Approx.Chi Square Value (.05)	3.436441
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	2.089914

Log-transformed Statistics

Minimum of log data	-2.207275
Maximum of log data	-0.209487
Mean of log data	-1.034394
Standard Deviation of log data	0.915198
Variance of log data	0.837588

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.858289
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	0.767467
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.570988
A-D 5% Critical Value	0.684597
K-S Test Statistic	0.343445
K-S 5% Critical Value	0.360561

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1.251532
Adjusted Gamma UCL	2.057892

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.823955
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	4.318469
95% Chebyshev (MVUE) UCL	1.330671
97.5% Chebyshev (MVUE) UCL	1.695039
99% Chebyshev (MVUE) UCL	2.410768

95% Non-parametric UCLs

CLT UCL	0.699149
Adj-CLT UCL (Adjusted for skewness)	0.675095
Mod-t UCL (Adjusted for skewness)	0.763715
Jackknife UCL	0.767467
Standard Bootstrap UCL	0.670075
Bootstrap-t UCL	0.791051
Hall's Bootstrap UCL	0.595838
Percentile Bootstrap UCL	0.6696
BCA Bootstrap UCL	0.6636
95% Chebyshev (Mean, Sd) UCL	1.079891
97.5% Chebyshev (Mean, Sd) UCL	1.344484
99% Chebyshev (Mean, Sd) UCL	1.864224

Data File

Variable: RDMAAs

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	156.7
Maximum	708
Mean	302.6286
Median	247.6
Standard Deviation	185.4619
Variance	34396.11
Coefficient of Variation	0.612837
Skewness	2.248768

Gamma Statistics

k hat	4.467052
k star (bias corrected)	2.647839
Theta hat	67.74683
Theta star	114.2927
nu hat	62.53872
nu star	37.06975
Approx.Chi Square Value (.05)	24.12906
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	21.03289

Log-transformed Statistics

Minimum of log data	5.054333
Maximum of log data	6.562444
Mean of log data	5.59642
Standard Deviation of log data	0.482595
Variance of log data	0.232898

RECOMMENDATION

Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.706111
Shapiro-Wilk 5% Critical Value	0.803
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	438.8416

Gamma Distribution Test

A-D Test Statistic	0.671039
A-D 5% Critical Value	0.709759
K-S Test Statistic	0.319236
K-S 5% Critical Value	0.312941
Data follow approximate gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	464.9316
Adjusted Gamma UCL	533.3726

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.866341
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	488.7622
95% Chebyshev (MVUE) UCL	534.9262
97.5% Chebyshev (MVUE) UCL	637.7114
99% Chebyshev (MVUE) UCL	839.6131

95% Non-parametric UCLs

CLT UCL	417.9295
Adj-CLT UCL (Adjusted for skewness)	481.5917
Mod-t UCL (Adjusted for skewness)	448.7716
Jackknife UCL	438.8416
Standard Bootstrap UCL	410.0354
Bootstrap-t UCL	646.8825
Hall's Bootstrap UCL	939.723
Percentile Bootstrap UCL	427.6
BCA Bootstrap UCL	462.8429
95% Chebyshev (Mean, Sd) UCL	608.1787
97.5% Chebyshev (Mean, Sd) UCL	740.3905
99% Chebyshev (Mean, Sd) UCL	1000.095

Data File

Variable: RDMASb

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	3.99
Maximum	63
Mean	22.88857
Median	20.13
Standard Deviation	19.04565
Variance	362.7367
Coefficient of Variation	0.832103
Skewness	1.873229

Gamma Statistics

k hat	1.92486
k star (bias corrected)	1.195158
Theta hat	11.89103
Theta star	19.15108
nu hat	26.94804
nu star	16.73221
Approx. Chi Square Value (.05)	8.479907
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	6.783436

Log-transformed Statistics

Minimum of log data	1.383791
Maximum of log data	4.143135
Mean of log data	2.848932
Standard Deviation of log data	0.846529
Variance of log data	0.716612

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.801181
Shapiro-Wilk 5% Critical Value	0.803
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	36.8767

Gamma Distribution Test

A-D Test Statistic	0.324806
A-D 5% Critical Value	0.715853
K-S Test Statistic	0.240651
K-S 5% Critical Value	0.315396
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	45.16282
Adjusted Gamma UCL	56.4576

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.949744
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	76.67671
95% Chebyshev (MVUE) UCL	55.81797
97.5% Chebyshev (MVUE) UCL	69.92188
99% Chebyshev (MVUE) UCL	97.6263

95% Non-parametric UCLs

CLT UCL	34.72918
Adj-CLT UCL (Adjusted for skewness)	40.17507
Mod-t UCL (Adjusted for skewness)	37.72615
Jackknife UCL	36.8767
Standard Bootstrap UCL	33.94233
Bootstrap-t UCL	47.97749
Hall's Bootstrap UCL	89.02393
Percentile Bootstrap UCL	34.65714
BCA Bootstrap UCL	37.79
95% Chebyshev (Mean, Sd) UCL	54.26645
97.5% Chebyshev (Mean, Sd) UCL	67.84368
99% Chebyshev (Mean, Sd) UCL	94.51352

Data File

Variable: RDMACd

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	9.94
Maximum	29.6
Mean	14.93143
Median	12.9
Standard Deviation	7.011637
Variance	49.16305
Coefficient of Variation	0.469589
Skewness	1.929135

Gamma Statistics

k hat	6.915048
k star (bias corrected)	4.046694
Theta hat	2.159266
Theta star	3.689784
nu hat	96.81067
nu star	56.65372
Approx. Chi Square Value (.05)	40.35029
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	36.23739

Log-transformed Statistics

Minimum of log data	2.296567
Maximum of log data	3.387774
Mean of log data	2.629423
Standard Deviation of log data	0.391648
Variance of log data	0.153388

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.759864
Shapiro-Wilk 5% Critical Value	0.803
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	20.08115

Gamma Distribution Test

A-D Test Statistic	0.59374
A-D 5% Critical Value	0.709331
K-S Test Statistic	0.253641
K-S 5% Critical Value	0.312596
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	20.96443
Adjusted Gamma UCL	23.34387

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.850492
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	21.51481
95% Chebyshev (MVUE) UCL	24.38215
97.5% Chebyshev (MVUE) UCL	28.52834
99% Chebyshev (MVUE) UCL	36.67273

95% Non-parametric UCLs

CLT UCL	19.29054
Adj-CLT UCL (Adjusted for skewness)	21.35527
Mod-t UCL (Adjusted for skewness)	20.4032
Jackknife UCL	20.08115
Standard Bootstrap UCL	18.9537
Bootstrap-t UCL	29.07396
Hall's Bootstrap UCL	39.933
Percentile Bootstrap UCL	19.82286
BCA Bootstrap UCL	21.12857
95% Chebyshev (Mean, Sd) UCL	26.48316
97.5% Chebyshev (Mean, Sd) UCL	31.48161
99% Chebyshev (Mean, Sd) UCL	41.30008

Data File

Variable: RDMACu

Raw Statistics	
Number of Valid Samples	7
Number of Unique Samples	7
Minimum	197.2
Maximum	1055
Mean	515.7
Median	394.6
Standard Deviation	327.8179
Variance	107464.6
Coefficient of Variation	0.635676
Skewness	1.03966

Gamma Statistics	
k hat	3.228565
k star (bias corrected)	1.940132
Theta hat	159.7304
Theta star	265.8066
nu hat	45.19991
nu star	27.16185
Approx. Chi Square Value (.05)	16.2751
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	13.79596

Log-transformed Statistics	
Minimum of log data	5.284218
Maximum of log data	6.961296
Mean of log data	6.082736
Standard Deviation of log data	0.607859
Variance of log data	0.369493

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.847065
Shapiro-Wilk 5% Critical Value	0.803
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	756.4668

Gamma Distribution Test	
A-D Test Statistic	0.397268
A-D 5% Critical Value	0.711622
K-S Test Statistic	0.209478
K-S 5% Critical Value	0.313528

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	860.6626
Adjusted Gamma UCL	1015.324

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.937328
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	1027.729
95% Chebyshev (MVUE) UCL	1027.618
97.5% Chebyshev (MVUE) UCL	1250.78
99% Chebyshev (MVUE) UCL	1689.139

95% Non-parametric UCLs	
CLT UCL	719.5031
Adj-CLT UCL (Adjusted for skewness)	771.5275
Mod-t UCL (Adjusted for skewness)	764.5815
Jackknife UCL	756.4668
Standard Bootstrap UCL	705.1418
Bootstrap-t UCL	1123.698
Hall's Bootstrap UCL	2350.459
Percentile Bootstrap UCL	716.5
BCA Bootstrap UCL	734.3857
95% Chebyshev (Mean, Sd) UCL	1055.783
97.5% Chebyshev (Mean, Sd) UCL	1289.477
99% Chebyshev (Mean, Sd) UCL	1748.524

Data File

Variable: RDMAPb

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	509.5
Maximum	2370
Mean	1108.957
Median	1007
Standard Deviation	597.2423
Variance	356698.3
Coefficient of Variation	0.538562
Skewness	1.885162

Gamma Statistics

k hat	5.052613
k star (bias corrected)	2.982445
Theta hat	219.4819
Theta star	371.8281
nu hat	70.73658
nu star	41.75424
Approx.Chi Square Value (.05)	27.94026
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	24.58066

Log-transformed Statistics

Minimum of log data	6.23343
Maximum of log data	7.770645
Mean of log data	6.908965
Standard Deviation of log data	0.472289
Variance of log data	0.223057

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.784664
Shapiro-Wilk 5% Critical Value	0.803
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	1547.603

Gamma Distribution Test

A-D Test Statistic	0.509939
A-D 5% Critical Value	0.709845
K-S Test Statistic	0.28528
K-S 5% Critical Value	0.312999
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1657.238
Adjusted Gamma UCL	1883.744

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.918192
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	1782.002
95% Chebyshev (MVUE) UCL	1960.523
97.5% Chebyshev (MVUE) UCL	2332.691
99% Chebyshev (MVUE) UCL	3063.742

95% Non-parametric UCLs

CLT UCL	1480.26
Adj-CLT UCL (Adjusted for skewness)	1652.123
Mod-t UCL (Adjusted for skewness)	1574.411
Jackknife UCL	1547.603
Standard Bootstrap UCL	1450.875
Bootstrap-t UCL	1881.813
Hall's Bootstrap UCL	3254.603
Percentile Bootstrap UCL	1493.786
BCA Bootstrap UCL	1602.6
95% Chebyshev (Mean, Sd) UCL	2092.919
97.5% Chebyshev (Mean, Sd) UCL	2518.68
99% Chebyshev (Mean, Sd) UCL	3355.006

Data File

Variable: RDMASe

Raw Statistics	
Number of Valid Samples	7
Number of Unique Samples	7
Minimum	1.01
Maximum	4.37
Mean	1.95
Median	1.74
Standard Deviation	1.120595
Variance	1.255733
Coefficient of Variation	0.574664
Skewness	2.116858

Gamma Statistics	
k hat	4.813124
k star (bias corrected)	2.845595
Theta hat	0.405142
Theta star	0.68527
nu hat	67.38374
nu star	39.83833
Approx. Chi Square Value (.05)	26.37521
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	23.1215

Log-transformed Statistics	
Minimum of log data	0.00995
Maximum of log data	1.474763
Mean of log data	0.560365
Standard Deviation of log data	0.471969
Variance of log data	0.222754

RECOMMENDATION  
Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.720277
Shapiro-Wilk 5% Critical Value	0.803
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	2.773024

Gamma Distribution Test	
A-D Test Statistic	0.689464
A-D 5% Critical Value	0.709824
K-S Test Statistic	0.337068
K-S 5% Critical Value	0.312986

Data follow approximate gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2.945369
Adjusted Gamma UCL	3.359848

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.859809
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	3.115251
95% Chebyshev (MVUE) UCL	3.427875
97.5% Chebyshev (MVUE) UCL	4.078341
99% Chebyshev (MVUE) UCL	5.356058

95% Non-parametric UCLs	
CLT UCL	2.64667
Adj-CLT UCL (Adjusted for skewness)	3.008765
Mod-t UCL (Adjusted for skewness)	2.829504
Jackknife UCL	2.773024
Standard Bootstrap UCL	2.582598
Bootstrap-t UCL	3.652219
Hall's Bootstrap UCL	5.924073
Percentile Bootstrap UCL	2.692857
BCA Bootstrap UCL	2.878571
95% Chebyshev (Mean, Sd) UCL	3.79619
97.5% Chebyshev (Mean, Sd) UCL	4.595038
99% Chebyshev (Mean, Sd) UCL	6.164221

Data File

Variable: RDMAAg

Raw Statistics		Normal Distribution Test	
Number of Valid Samples	7	Shapiro-Wilk Test Statistic	0.695867
Number of Unique Samples	7	Shapiro-Wilk 5% Critical Value	0.803
Minimum	3.08	Data not normal at 5% significance level	
Maximum	14.25	95% UCL (Assuming Normal Distribution)	
Mean	5.904286	Student's-t UCL	8.703524
Median	5.09	Gamma Distribution Test	
Standard Deviation	3.811325	A-D Test Statistic	0.685231
Variance	14.5262	A-D 5% Critical Value	0.709687
Coefficient of Variation	0.645518	K-S Test Statistic	0.326112
Skewness	2.268161	K-S 5% Critical Value	0.312892
Gamma Statistics		Data follow approximate gamma distribution at 5% significance level	
k hat	4.090447	95% UCLs (Assuming Gamma Distribution)	
k star (bias corrected)	2.432636	Approximate Gamma UCL	9.263152
Theta hat	1.443433	Adjusted Gamma UCL	10.70175
Theta star	2.427114	Lognormal Distribution Test	
nu hat	57.26626	Shapiro-Wilk Test Statistic	0.855159
nu star	34.05691	Shapiro-Wilk 5% Critical Value	0.803
Approx.Chi Square Value (.05)	21.7077	Data are lognormal at 5% significance level	
Adjusted Level of Significance	0.01584	95% UCLs (Assuming Lognormal Distribution)	
Adjusted Chi Square Value	18.78962	95% H-UCL	9.807587
Log-transformed Statistics		95% Chebyshev (MVUE) UCL	10.61066
Minimum of log data	1.12493	97.5% Chebyshev (MVUE) UCL	12.69774
Maximum of log data	2.656757	99% Chebyshev (MVUE) UCL	16.79741
Mean of log data	1.648491	95% Non-parametric UCLs	
Standard Deviation of log data	0.503402	CLT UCL	8.273772
Variance of log data	0.253413	Adj-CLT UCL (Adjusted for skewness)	9.593341
RECOMMENDATION		Mod-t UCL (Adjusted for skewness)	8.90935
Assuming gamma distribution (0.05)		Jackknife UCL	8.703524
Use Approximate Gamma UCL		Standard Bootstrap UCL	8.066285
		Bootstrap-t UCL	12.84211
		Hall's Bootstrap UCL	19.32742
		Percentile Bootstrap UCL	8.511429
		BCA Bootstrap UCL	9.062857
		95% Chebyshev (Mean, Sd) UCL	12.18348
		97.5% Chebyshev (Mean, Sd) UCL	14.90049
		99% Chebyshev (Mean, Sd) UCL	20.23753

Data File

Variable: RDMATI

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	0.78
Maximum	2.78
Mean	1.868571
Median	2.16
Standard Deviation	0.855773
Variance	0.732348
Coefficient of Variation	0.457983
Skewness	-0.283911

Gamma Statistics

k hat	4.687751
k star (bias corrected)	2.773953
Theta hat	0.398607
Theta star	0.673613
nu hat	65.62851
nu star	38.83534
Approx. Chi Square Value (.05)	25.55931
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	22.36203

Log-transformed Statistics

Minimum of log data	-0.248461
Maximum of log data	1.022451
Mean of log data	0.514738
Standard Deviation of log data	0.532802
Variance of log data	0.283878

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.864789
Shapiro-Wilk 5% Critical Value	0.803
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	2.497096

Gamma Distribution Test

A-D Test Statistic	0.540068
A-D 5% Critical Value	0.709801
K-S Test Statistic	0.253809
K-S 5% Critical Value	0.312969
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2.839146
Adjusted Gamma UCL	3.245082

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.855084
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.343752
95% Chebyshev (MVUE) UCL	3.550813
97.5% Chebyshev (MVUE) UCL	4.271056
99% Chebyshev (MVUE) UCL	5.685836

95% Non-parametric UCLs

CLT UCL	2.400602
Adj-CLT UCL (Adjusted for skewness)	2.363515
Mod-t UCL (Adjusted for skewness)	2.491312
Jackknife UCL	2.497096
Standard Bootstrap UCL	2.351529
Bootstrap-t UCL	2.42728
Hall's Bootstrap UCL	2.23838
Percentile Bootstrap UCL	2.35
BCA Bootstrap UCL	2.345714
95% Chebyshev (Mean, Sd) UCL	3.278465
97.5% Chebyshev (Mean, Sd) UCL	3.888527
99% Chebyshev (Mean, Sd) UCL	5.086877

Data File

Variable: RDMAZn

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	949.7
Maximum	4166
Mean	2391.1
Median	2339
Standard Deviation	1061.545
Variance	1126879
Coefficient of Variation	0.443957
Skewness	0.422835

Gamma Statistics

k hat	5.438455
k star (bias corrected)	3.202927
Theta hat	439.6653
Theta star	746.536
nu hat	76.13837
nu star	44.84097
Approx. Chi Square Value (.05)	30.47841
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	26.95307

Log-transformed Statistics

Minimum of log data	6.856146
Maximum of log data	8.334712
Mean of log data	7.684763
Standard Deviation of log data	0.489869
Variance of log data	0.239972

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.976966
Shapiro-Wilk 5% Critical Value	0.803
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	3170.755
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.190783
A-D 5% Critical Value	0.709739
K-S Test Statistic	0.181944
K-S 5% Critical Value	0.312915

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	3517.875
Adjusted Gamma UCL	3977.998

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.965007
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3998.901
95% Chebyshev (MVUE) UCL	4359.632
97.5% Chebyshev (MVUE) UCL	5204.346
99% Chebyshev (MVUE) UCL	6863.622

95% Non-parametric UCLs

CLT UCL	3051.059
Adj-CLT UCL (Adjusted for skewness)	3119.575
Mod-t UCL (Adjusted for skewness)	3181.442
Jackknife UCL	3170.755
Standard Bootstrap UCL	2993.595
Bootstrap-t UCL	3292.866
Hall's Bootstrap UCL	3542.712
Percentile Bootstrap UCL	3040.814
BCA Bootstrap UCL	3078.286
95% Chebyshev (Mean, Sd) UCL	4140.006
97.5% Chebyshev (Mean, Sd) UCL	4896.758
99% Chebyshev (Mean, Sd) UCL	6383.253

Data File

Variable: RDMAHg

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	0.107
Maximum	1.137
Mean	0.465429
Median	0.314
Standard Deviation	0.361668
Variance	0.130804
Coefficient of Variation	0.777064
Skewness	1.134114

Gamma Statistics

k hat	1.964572
k star (bias corrected)	1.217851
Theta hat	0.236911
Theta star	0.382172
nu hat	27.50401
nu star	17.04991
Approx. Chi Square Value (.05)	8.706572
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	6.983313

Log-transformed Statistics

Minimum of log data	-2.234926
Maximum of log data	0.128393
Mean of log data	-1.040393
Standard Deviation of log data	0.828563
Variance of log data	0.686517

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.896237
Shapiro-Wilk 5% Critical Value	0.803
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	0.731057

Gamma Distribution Test

A-D Test Statistic	0.208378
A-D 5% Critical Value	0.715349
K-S Test Statistic	0.178256
K-S 5% Critical Value	0.315245
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	0.91144
Adjusted Gamma UCL	1.136354

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.975037
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	1.484673
95% Chebyshev (MVUE) UCL	1.114435
97.5% Chebyshev (MVUE) UCL	1.393526
99% Chebyshev (MVUE) UCL	1.941745

95% Non-parametric UCLs

CLT UCL	0.690276
Adj-CLT UCL (Adjusted for skewness)	0.752887
Mod-t UCL (Adjusted for skewness)	0.740823
Jackknife UCL	0.731057
Standard Bootstrap UCL	0.675088
Bootstrap-t UCL	0.882602
Hall's Bootstrap UCL	0.81162
Percentile Bootstrap UCL	0.693429
BCA Bootstrap UCL	0.723
95% Chebyshev (Mean, Sd) UCL	1.06128
97.5% Chebyshev (Mean, Sd) UCL	1.319105
99% Chebyshev (Mean, Sd) UCL	1.825552

Data File

Variable: RDCHAs

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	122.1
Maximum	413.6
Mean	260.69
Median	239.2
Standard Deviation	136.9466
Variance	18754.37
Coefficient of Variation	0.525323
Skewness	0.202308

Gamma Statistics

k hat	4.22269
k star (bias corrected)	1.822409
Theta hat	61.73552
Theta star	143.0469
nu hat	42.2269
nu star	18.22409
Approx. Chi Square Value (.05)	9.551622
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	6.976456

Log-transformed Statistics

Minimum of log data	4.80484
Maximum of log data	6.024899
Mean of log data	5.440276
Standard Deviation of log data	0.567707
Variance of log data	0.322291

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.864892
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	391.2536
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.417354
A-D 5% Critical Value	0.681122
K-S Test Statistic	0.252792
K-S 5% Critical Value	0.358419

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	497.3856
Adjusted Gamma UCL	680.9818

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.87505
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	666.4174
95% Chebyshev (MVUE) UCL	547.5116
97.5% Chebyshev (MVUE) UCL	671.2576
99% Chebyshev (MVUE) UCL	914.3326

95% Non-parametric UCLs

CLT UCL	361.428
Adj-CLT UCL (Adjusted for skewness)	367.3487
Mod-t UCL (Adjusted for skewness)	392.1771
Jackknife UCL	391.2536
Standard Bootstrap UCL	351.7815
Bootstrap-t UCL	413.7434
Hall's Bootstrap UCL	414.7845
Percentile Bootstrap UCL	349.28
BCA Bootstrap UCL	350.71
95% Chebyshev (Mean, Sd) UCL	527.648
97.5% Chebyshev (Mean, Sd) UCL	643.161
99% Chebyshev (Mean, Sd) UCL	870.0638

Data File

Variable: RDCHSb

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	2.86
Maximum	13.715
Mean	7.673
Median	6.81
Standard Deviation	4.575442
Variance	20.93467
Coefficient of Variation	0.596304
Skewness	0.416087

Gamma Statistics

k hat	3.25903
k star (bias corrected)	1.436945
Theta hat	2.354382
Theta star	5.3398
nu hat	32.5903
nu star	14.36945
Approx. Chi Square Value (.05)	6.823904
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	4.72954

Log-transformed Statistics

Minimum of log data	1.050822
Maximum of log data	2.61849
Mean of log data	1.876513
Standard Deviation of log data	0.655313
Variance of log data	0.429435

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.937414
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	12.03518
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.247936
A-D 5% Critical Value	0.68227
K-S Test Statistic	0.203264
K-S 5% Critical Value	0.359169

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	16.15744
Adjusted Gamma UCL	23.31237

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.952306
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	25.40089
95% Chebyshev (MVUE) UCL	17.41866
97.5% Chebyshev (MVUE) UCL	21.61589
99% Chebyshev (MVUE) UCL	29.86052

95% Non-parametric UCLs

CLT UCL	11.0387
Adj-CLT UCL (Adjusted for skewness)	11.44554
Mod-t UCL (Adjusted for skewness)	12.09864
Jackknife UCL	12.03518
Standard Bootstrap UCL	10.71768
Bootstrap-t UCL	14.49853
Hall's Bootstrap UCL	14.19964
Percentile Bootstrap UCL	10.662
BCA Bootstrap UCL	10.981
95% Chebyshev (Mean, Sd) UCL	16.59218
97.5% Chebyshev (Mean, Sd) UCL	20.45151
99% Chebyshev (Mean, Sd) UCL	28.03243

Data File

Variable: RDCHCd

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	7.71
Maximum	128.8
Mean	36.062
Median	12.2
Standard Deviation	52.11312
Variance	2715.777
Coefficient of Variation	1.445098
Skewness	2.179796

Gamma Statistics

k hat	0.924473
k star (bias corrected)	0.503122
Theta hat	39.00818
Theta star	71.6764
nu hat	9.244727
nu star	5.031224
Approx.Chi Square Value (.05)	1.166235
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	0.542994

Log-transformed Statistics

Minimum of log data	2.042518
Maximum of log data	4.858261
Mean of log data	2.954959
Standard Deviation of log data	1.129973
Variance of log data	1.276839

RECOMMENDATION

Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.638751
Shapiro-Wilk 5% Critical Value	0.762
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	85.74615

Gamma Distribution Test

A-D Test Statistic	0.71792
A-D 5% Critical Value	0.693428
K-S Test Statistic	0.335961
K-S 5% Critical Value	0.365093

Data follow approximate gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	155.5741
Adjusted Gamma UCL	334.1399

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.830023
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	799.2687
95% Chebyshev (MVUE) UCL	95.04991
97.5% Chebyshev (MVUE) UCL	122.8394
99% Chebyshev (MVUE) UCL	177.4263

95% Non-parametric UCLs

CLT UCL	74.39646
Adj-CLT UCL (Adjusted for skewness)	98.67224
Mod-t UCL (Adjusted for skewness)	89.53269
Jackknife UCL	85.74615
Standard Bootstrap UCL	70.68047
Bootstrap-t UCL	737.1406
Hall's Bootstrap UCL	338.2641
Percentile Bootstrap UCL	80.364
BCA Bootstrap UCL	85.94
95% Chebyshev (Mean, Sd) UCL	137.6492
97.5% Chebyshev (Mean, Sd) UCL	181.606
99% Chebyshev (Mean, Sd) UCL	267.9508

Recommended UCL exceeds the maximum observation

Data File

Variable: RDCHCu

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	190.9
Maximum	729.3
Mean	354.01
Median	292.5
Standard Deviation	221.3716
Variance	49005.37
Coefficient of Variation	0.625326
Skewness	1.705014

Gamma Statistics

k hat	3.977338
k star (bias corrected)	1.724269
Theta hat	89.00676
Theta star	205.3102
nu hat	39.77338
nu star	17.24269
Approx. Chi Square Value (.05)	8.844536
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	6.387024

Log-transformed Statistics

Minimum of log data	5.25175
Maximum of log data	6.592085
Mean of log data	5.738377
Standard Deviation of log data	0.547756
Variance of log data	0.300036

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.805587
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	565.0635
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.413195
A-D 5% Critical Value	0.681271
K-S Test Statistic	0.218805
K-S 5% Critical Value	0.358472

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	690.153
Adjusted Gamma UCL	955.7008

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.896153
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	844.2762
95% Chebyshev (MVUE) UCL	718.2818
97.5% Chebyshev (MVUE) UCL	877.9176
99% Chebyshev (MVUE) UCL	1191.491

95% Non-parametric UCLs

CLT UCL	516.8511
Adj-CLT UCL (Adjusted for skewness)	597.5115
Mod-t UCL (Adjusted for skewness)	577.6449
Jackknife UCL	565.0635
Standard Bootstrap UCL	499.944
Bootstrap-t UCL	850.394
Hall's Bootstrap UCL	1204.794
Percentile Bootstrap UCL	534.26
BCA Bootstrap UCL	547.89
95% Chebyshev (Mean, Sd) UCL	785.5426
97.5% Chebyshev (Mean, Sd) UCL	972.2671
99% Chebyshev (Mean, Sd) UCL	1339.051

Data File

Variable: RDCHPb

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	456.1
Maximum	2031
Mean	1003.77
Median	916.3
Standard Deviation	613.3303
Variance	376174.1
Coefficient of Variation	0.611027
Skewness	1.563369

Gamma Statistics

k hat	3.941472
k star (bias corrected)	1.709922
Theta hat	254.6688
Theta star	587.0267
nu hat	39.41472
nu star	17.09922
Approx. Chi Square Value (.05)	8.741834
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	6.301774

Log-transformed Statistics

Minimum of log data	6.122712
Maximum of log data	7.616284
Mean of log data	6.779331
Standard Deviation of log data	0.561458
Variance of log data	0.315236

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.854181
Shapiro-Wilk 5% Critical Value	0.762
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	1588.513
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.30136
A-D 5% Critical Value	0.681321
K-S Test Statistic	0.245217
K-S 5% Critical Value	0.358507

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1963.396
Adjusted Gamma UCL	2723.628

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.963466
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	2493.534
95% Chebyshev (MVUE) UCL	2071.673
97.5% Chebyshev (MVUE) UCL	2537.49
99% Chebyshev (MVUE) UCL	3452.497

95% Non-parametric UCLs

CLT UCL	1454.936
Adj-CLT UCL (Adjusted for skewness)	1659.848
Mod-t UCL (Adjusted for skewness)	1620.475
Jackknife UCL	1588.513
Standard Bootstrap UCL	1416.124
Bootstrap-t UCL	2084.558
Hall's Bootstrap UCL	3412.552
Percentile Bootstrap UCL	1469.56
BCA Bootstrap UCL	1541.69
95% Chebyshev (Mean, Sd) UCL	2199.371
97.5% Chebyshev (Mean, Sd) UCL	2716.708
99% Chebyshev (Mean, Sd) UCL	3732.918

Data File

Variable: RDCHSe

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.57
Maximum	2.4
Mean	1.383
Median	1.3
Standard Deviation	0.669231
Variance	0.44787
Coefficient of Variation	0.483898
Skewness	0.693133

Gamma Statistics

k hat	5.060427
k star (bias corrected)	2.157504
Theta hat	0.273297
Theta star	0.641018
nu hat	50.60427
nu star	21.57504
Approx.Chi Square Value (.05)	12.01866
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	9.062278

Log-transformed Statistics

Minimum of log data	-0.562119
Maximum of log data	0.875469
Mean of log data	0.222207
Standard Deviation of log data	0.523283
Variance of log data	0.273825

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.9637
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	2.021038
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.216353
A-D 5% Critical Value	0.680688
K-S Test Statistic	0.179374
K-S 5% Critical Value	0.358301

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2.482662
Adjusted Gamma UCL	3.292581

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.968408
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.157755
95% Chebyshev (MVUE) UCL	2.795173
97.5% Chebyshev (MVUE) UCL	3.402889
99% Chebyshev (MVUE) UCL	4.596629

95% Non-parametric UCLs

CLT UCL	1.875287
Adj-CLT UCL (Adjusted for skewness)	1.974416
Mod-t UCL (Adjusted for skewness)	2.036501
Jackknife UCL	2.021038
Standard Bootstrap UCL	1.820467
Bootstrap-t UCL	2.196391
Hall's Bootstrap UCL	3.023861
Percentile Bootstrap UCL	1.83
BCA Bootstrap UCL	1.888
95% Chebyshev (Mean, Sd) UCL	2.687571
97.5% Chebyshev (Mean, Sd) UCL	3.25206
99% Chebyshev (Mean, Sd) UCL	4.36089

Data File

Variable: RDCHAg

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	3.23
Maximum	12.09
Mean	6.191
Median	3.77
Standard Deviation	3.946094
Variance	15.57166
Coefficient of Variation	0.637392
Skewness	1.052532

Gamma Statistics

k hat	3.438234
k star (bias corrected)	1.508627
Theta hat	1.800634
Theta star	4.103732
nu hat	34.38234
nu star	15.08627
Approx. Chi Square Value (.05)	7.3204
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	5.132603

Log-transformed Statistics

Minimum of log data	1.172482
Maximum of log data	2.492379
Mean of log data	1.670681
Standard Deviation of log data	0.602895
Variance of log data	0.363482

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.810626
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	9.953168
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.574637
A-D 5% Critical Value	0.682021
K-S Test Statistic	0.346118
K-S 5% Critical Value	0.358995

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	12.75874
Adjusted Gamma UCL	18.19722

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.82666
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	17.22574
95% Chebyshev (MVUE) UCL	13.23049
97.5% Chebyshev (MVUE) UCL	16.30416
99% Chebyshev (MVUE) UCL	22.34178

95% Non-parametric UCLs

CLT UCL	9.09375
Adj-CLT UCL (Adjusted for skewness)	9.981341
Mod-t UCL (Adjusted for skewness)	10.09161
Jackknife UCL	9.953168
Standard Bootstrap UCL	8.755519
Bootstrap-t UCL	47.51549
Hall's Bootstrap UCL	54.45489
Percentile Bootstrap UCL	8.9
BCA Bootstrap UCL	9.591
95% Chebyshev (Mean, Sd) UCL	13.88335
97.5% Chebyshev (Mean, Sd) UCL	17.21184
99% Chebyshev (Mean, Sd) UCL	23.75001

Data File

Variable: RDCHTI

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.69
Maximum	2.49
Mean	1.538
Median	1.4
Standard Deviation	0.662473
Variance	0.43887
Coefficient of Variation	0.430736
Skewness	0.366904

Gamma Statistics

k hat	6.187788
k star (bias corrected)	2.608449
Theta hat	0.248554
Theta star	0.589622
nu hat	61.87788
nu star	26.08449
Approx. Chi Square Value (.05)	15.44261
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	12.01456

Log-transformed Statistics

Minimum of log data	-0.371064
Maximum of log data	0.912283
Mean of log data	0.347508
Standard Deviation of log data	0.47313
Variance of log data	0.223852

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.977106
Shapiro-Wilk 5% Critical Value	0.762

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	2.169595
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.228281
A-D 5% Critical Value	0.680275
K-S Test Statistic	0.207232
K-S 5% Critical Value	0.358139

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2.597874
Adjusted Gamma UCL	3.339109

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.958482
Shapiro-Wilk 5% Critical Value	0.762

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.116414
95% Chebyshev (MVUE) UCL	2.960656
97.5% Chebyshev (MVUE) UCL	3.572725
99% Chebyshev (MVUE) UCL	4.775017

95% Non-parametric UCLs

CLT UCL	2.025315
Adj-CLT UCL (Adjusted for skewness)	2.077259
Mod-t UCL (Adjusted for skewness)	2.177697
Jackknife UCL	2.169595
Standard Bootstrap UCL	1.975961
Bootstrap-t UCL	2.310328
Hall's Bootstrap UCL	2.779338
Percentile Bootstrap UCL	1.992
BCA Bootstrap UCL	1.99
95% Chebyshev (Mean, Sd) UCL	2.829397
97.5% Chebyshev (Mean, Sd) UCL	3.388185
99% Chebyshev (Mean, Sd) UCL	4.485817

Data File

Variable: RDCHZn

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	1192
Maximum	25280
Mean	6611.1
Median	2500
Standard Deviation	10454.53
Variance	1.09E+08
Coefficient of Variation	1.581361
Skewness	2.216513

Gamma Statistics

k hat	0.787971
k star (bias corrected)	0.448522
Theta hat	8390.028
Theta star	14739.75
nu hat	7.879712
nu star	4.485218
Approx. Chi Square Value (.05)	0.921892
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	0.40347

Log-transformed Statistics

Minimum of log data	7.083388
Maximum of log data	10.13777
Mean of log data	8.041806
Standard Deviation of log data	1.218888
Variance of log data	1.485689

RECOMMENDATION

Data are lognormal (0.05)

Use 95% Chebyshev (MVUE) UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.606304
Shapiro-Wilk 5% Critical Value	0.762
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	16578.35
-----------------	----------

Gamma Distribution Test

A-D Test Statistic	0.844976
A-D 5% Critical Value	0.6972
K-S Test Statistic	0.424553
K-S 5% Critical Value	0.366327

Data do not follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	32164.54
Adjusted Gamma UCL	73493.08

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.79
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	232687
95% Chebyshev (MVUE) UCL	17280.16
97.5% Chebyshev (MVUE) UCL	22438.14
99% Chebyshev (MVUE) UCL	32569.98

95% Non-parametric UCLs

CLT UCL	14301.47
Adj-CLT UCL (Adjusted for skewness)	19253.52
Mod-t UCL (Adjusted for skewness)	17350.77
Jackknife UCL	16578.35
Standard Bootstrap UCL	13321.4
Bootstrap-t UCL	101917.9
Hall's Bootstrap UCL	110441.5
Percentile Bootstrap UCL	15702
BCA Bootstrap UCL	16168
95% Chebyshev (Mean, Sd) UCL	26990.74
97.5% Chebyshev (Mean, Sd) UCL	35809.03
99% Chebyshev (Mean, Sd) UCL	53130.84

Data File

Variable: RDCHHg

Raw Statistics

Number of Valid Samples	5
Number of Unique Samples	5
Minimum	0.097
Maximum	0.703
Mean	0.2612
Median	0.173
Standard Deviation	0.250122
Variance	0.062561
Coefficient of Variation	0.957589
Skewness	2.096803

Gamma Statistics

k hat	1.992918
k star (bias corrected)	0.930501
Theta hat	0.131064
Theta star	0.280709
nu hat	19.92918
nu star	9.305006
Approx. Chi Square Value (.05)	3.511438
Adjusted Level of Significance	0.0086
Adjusted Chi Square Value	2.145418

Log-transformed Statistics

Minimum of log data	-2.333044
Maximum of log data	-0.352398
Mean of log data	-1.613862
Standard Deviation of log data	0.757853
Variance of log data	0.574342

RECOMMENDATION

Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.702888
Shapiro-Wilk 5% Critical Value	0.762
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	0.499664

Gamma Distribution Test

A-D Test Statistic	0.585011
A-D 5% Critical Value	0.684477
K-S Test Statistic	0.34442
K-S 5% Critical Value	0.360487
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	0.692157
Adjusted Gamma UCL	1.132864

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.874989
Shapiro-Wilk 5% Critical Value	0.762
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	1.158901
95% Chebyshev (MVUE) UCL	0.607419
97.5% Chebyshev (MVUE) UCL	0.762723
99% Chebyshev (MVUE) UCL	1.067787

95% Non-parametric UCLs

CLT UCL	0.44519
Adj-CLT UCL (Adjusted for skewness)	0.557268
Mod-t UCL (Adjusted for skewness)	0.517146
Jackknife UCL	0.499664
Standard Bootstrap UCL	0.421328
Bootstrap-t UCL	1.192022
Hall's Bootstrap UCL	1.504328
Percentile Bootstrap UCL	0.4676
BCA Bootstrap UCL	0.4884
95% Chebyshev (Mean, Sd) UCL	0.748778
97.5% Chebyshev (Mean, Sd) UCL	0.959754
99% Chebyshev (Mean, Sd) UCL	1.374174