

Model 644 test Result using .177 external sonic nozzle

644-CCDI Flow Stand using internal .125 CCDI calibrated nozzle

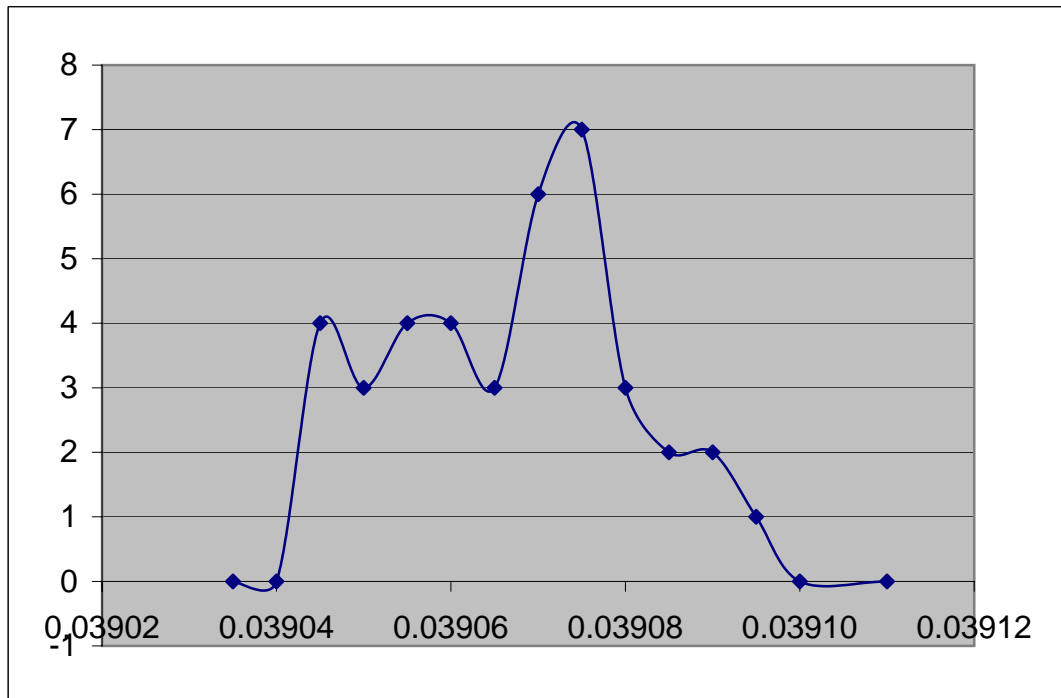
Nov-04

n	Mass
1	0.039041
2	0.039091
3	0.039073
4	0.039074
5	0.039082
6	0.039085
7	0.039046
8	0.039055
9	0.039076
10	0.039044
11	0.039074
12	0.039074
13	0.039068
14	0.039062
15	0.039068
16	0.039072
17	0.039068
18	0.039070
19	0.039052
20	0.039055
21	0.039087
22	0.039069
23	0.039047
24	0.039081
25	0.039055
26	0.039047
27	0.039073
28	0.039069
29	0.039042
30	0.039076
31	0.039061
32	0.039059
33	0.039071
34	0.039055
35	0.039043
36	0.039054
37	0.039077
38	0.039063
39	0.039051

General Statistics	
Mean	0.039064259
Standard Error	2.17405E-06
Median	0.0390677
Mode	0.0390741
Standard Deviation	1.35769E-05
Sample Variance	1.84334E-10
Kurtosis	-0.911075927
Skewness	-0.075240011
Range	5.05E-05
Minimum	0.0390406
Maximum	0.0390911
Sum	1.5235061
Count	39
Largest(1)	0.0390911
Smallest(1)	0.0390406
Confidence Level(95.0%)	4.40114E-06

Vital Flow Statistics	
NISTTraceable =	0
UL95%=	0.039069
Mean=	0.039064
LL95%=	0.039060
Bias(Mean-NIST)=	0.039064
StdDev%=	0.034755

Flow Stand s/n=	_____
Internal Noz s/n=	_____
External Noz s/n=	_____



Comments: _____

Model 644 Mass Flow Stand using .125 external sonic nozzle

644-CCDI Flow Stand using internal .088 CCDI calibrated nozzle

Nov-04

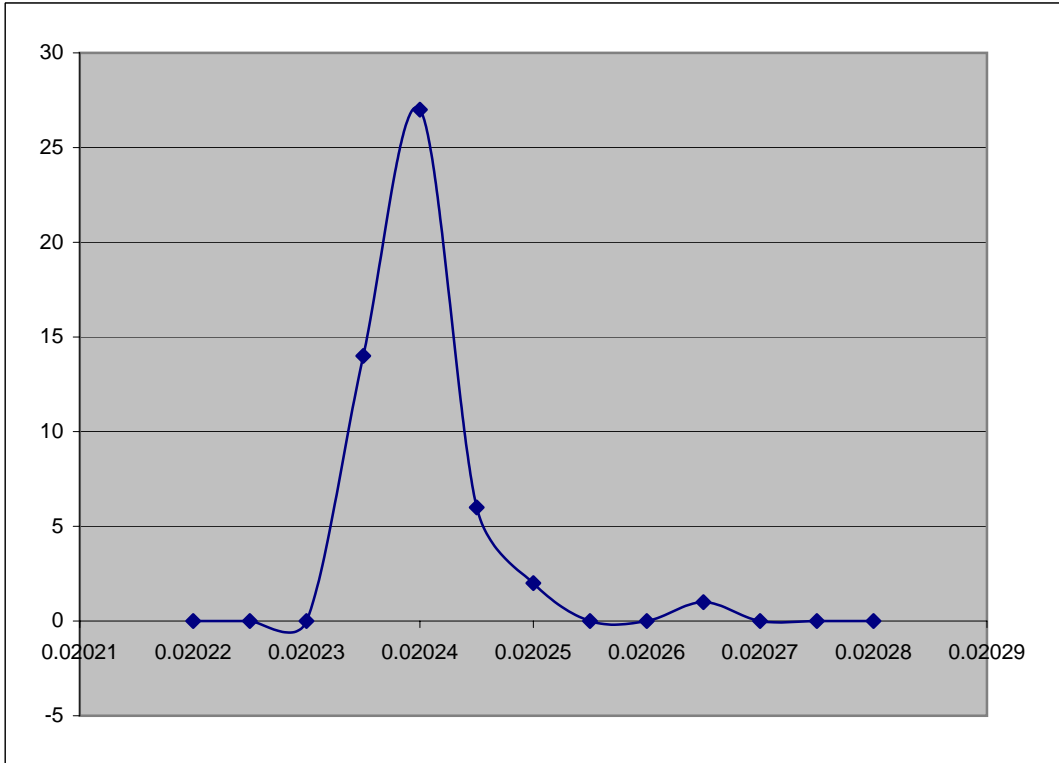
n (lbm/sec)

- 1 0.020264
- 2 0.020249
- 3 0.020245
- 4 0.020245
- 5 0.020241
- 6 0.020239
- 7 0.020238
- 8 0.020236
- 9 0.020236
- 10 0.020238
- 11 0.020239
- 12 0.020239
- 13 0.020240
- 14 0.020237
- 15 0.020238
- 16 0.020241
- 17 0.020236
- 18 0.020239
- 19 0.020236
- 20 0.020236
- 21 0.020238
- 22 0.020241
- 23 0.020237
- 24 0.020237
- 25 0.020235
- 26 0.020236
- 27 0.020234
- 28 0.020237
- 29 0.020241
- 30 0.020233
- 31 0.020236
- 32 0.020232
- 33 0.020236
- 34 0.020237
- 35 0.020239
- 36 0.020235
- 37 0.020234
- 38 0.020235
- 39 0.020237
- 40 0.020240
- 41 0.020231
- 42 0.020232
- 43 0.020234
- 44 0.020234
- 45 0.020232
- 46 0.020234
- 47 0.020232
- 48 0.020233
- 49 0.020232
- 50 0.020236

General Statistics	
Mean	0.0202373
Standard Error	7.43423E-07
Median	0.0202364
Mode	0.0202356
Standard Deviation	5.25679E-06
Sample Variance	2.76339E-11
Kurtosis	12.51135226
Skewness	2.883887372
Range	3.31E-05
Minimum	0.0202306
Maximum	0.0202637
Sum	1.011865
Count	50
Largest(1)	0.0202637
Smallest(1)	0.0202306
Confidence Level(95.0%)	1.49396E-06

Vital Flow Statistics
NIST Traceable = 0.020218
Upper Limit 95%= 0.020239
Mean= 0.020237
Lower Limit 95%= 0.020236
Bias(Mean-NIST)= 0.000019
StdDev%= 0.025976

Flow Stand s/n= _____
Internal Noz s/n= _____
External Noz s/n= _____



Comments: _____

Model 644 Mass Flow Stand using .088 external sonic nozzle

644-CCDI Flow Stand using internal .062 CCDI calibrated nozzle

Nov-04

n (lbm/sec)

1	0.009841
2	0.009844
3	0.009840
4	0.009839
5	0.009838
6	0.009835
7	0.009835
8	0.009833
9	0.009831
10	0.009829
11	0.009830
12	0.009828
13	0.009826
14	0.009827
15	0.009826
16	0.009828
17	0.009826
18	0.009823
19	0.009825
20	0.009826
21	0.009829
22	0.009828
23	0.009825
24	0.009827
25	0.009825
26	0.009824
27	0.009827
28	0.009824
29	0.009823
30	0.009823
31	0.009828
32	0.009823
33	0.009826
34	0.009825
35	0.009823
36	0.009823
37	0.009823
38	0.009823
39	0.009822
40	0.009823
41	0.009824
42	0.009824
43	0.009820
44	0.009823
45	0.009823
46	0.009825
47	0.009822
48	0.009821
49	0.009823
50	0.009821

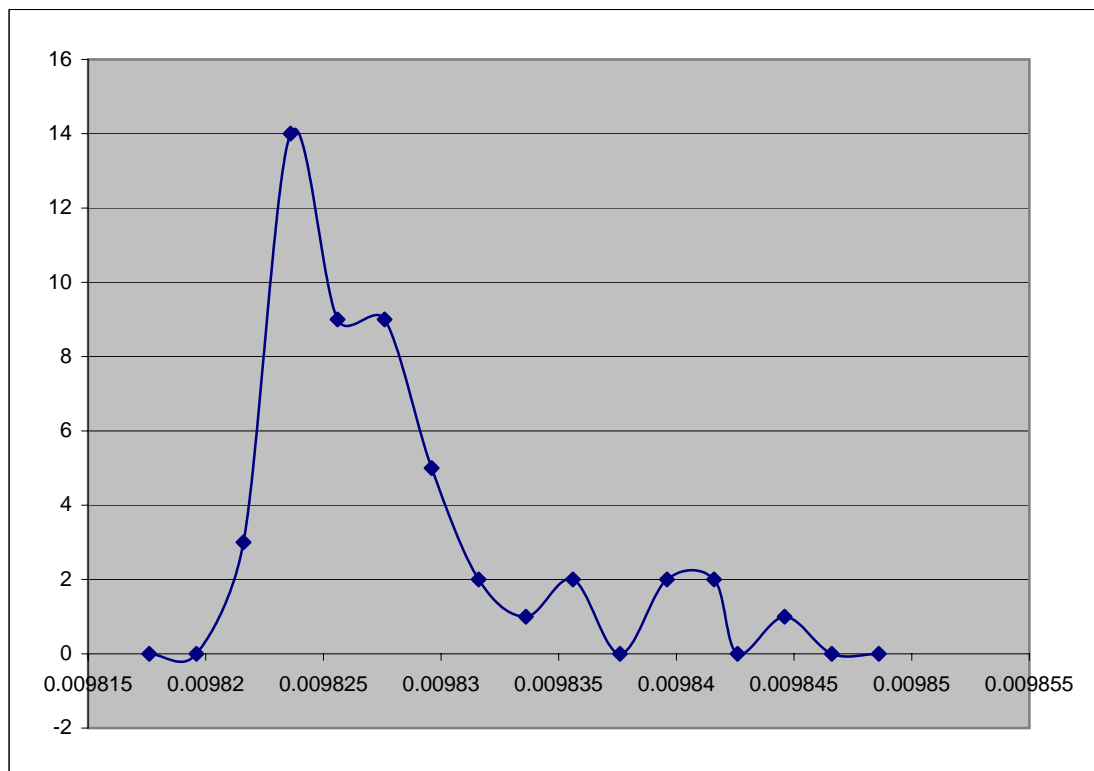
General Statistics	
Mean	0.009826916
Standard Error	7.9476E-07
Median	0.00982515
Mode	0.0098249
Standard Deviation	5.6198E-06
Sample Variance	3.15822E-11
Kurtosis	1.556289542
Skewness	1.461546549
Range	2.4E-05
Minimum	0.0098196
Maximum	0.0098436
Sum	0.4913458
Count	50
Largest(1)	0.0098436
Smallest(1)	0.0098196
Confidence Level(95.0%)	1.59713E-06

Vital Flow Statistics
NIST Traceable = 0.009809
Upper Limit 95%= 0.009829
Mean= 0.009827
Lower Limit 95%= 0.009825
Bias(Mean-NIST)= 0.000018
StdDev%= 0.057188

Flow Stand s/n= _____

Internal Noz s/n= _____

External Noz s/n= _____



Comments: _____

Model 644 Mass Flow Stand using .062 external sonic nozzle

644-CCDI Flow Stand using internal .044 CCDI calibrated nozzle

Nov-04

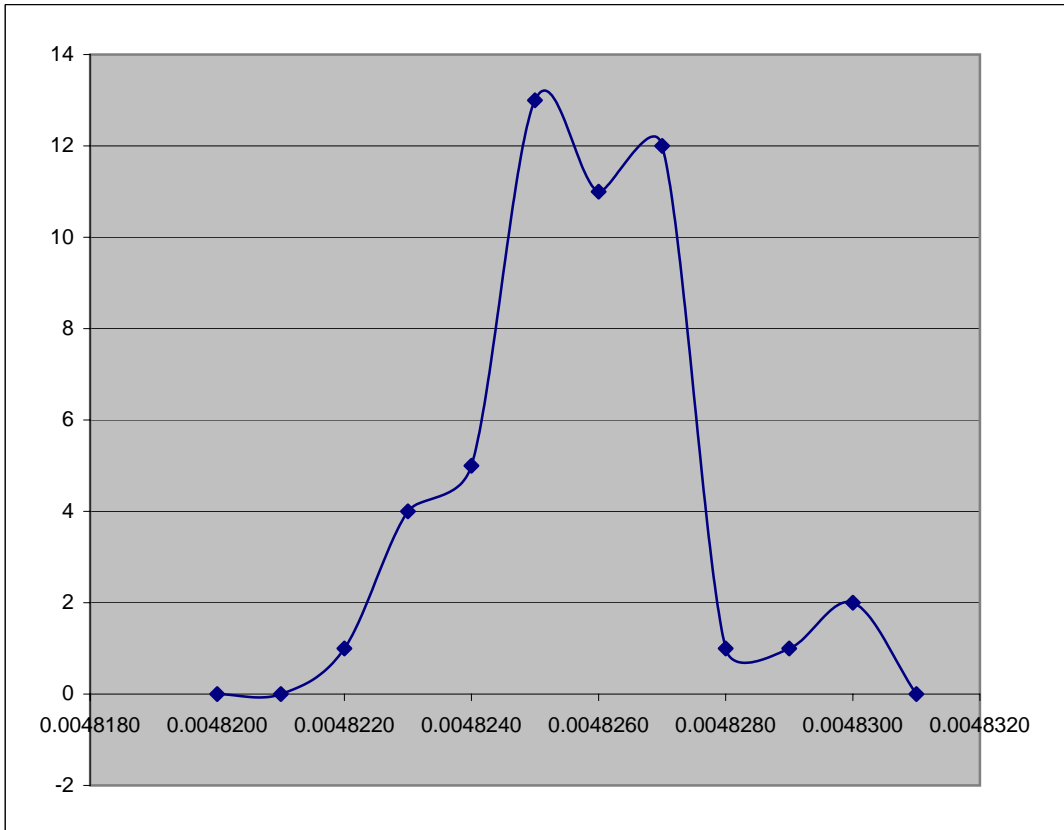
n (lbm/sec)

1 0.004825
 2 0.004823
 3 0.004826
 4 0.004825
 5 0.004827
 6 0.004827
 7 0.004830
 8 0.004827
 9 0.004827
 10 0.004828
 11 0.004827
 12 0.004827
 13 0.004830
 14 0.004828
 15 0.004826
 16 0.004826
 17 0.004826
 18 0.004827
 19 0.004826
 20 0.004824
 21 0.004825
 22 0.004824
 23 0.004824
 24 0.004825
 25 0.004824
 26 0.004827
 27 0.004822
 28 0.004825
 29 0.004825
 30 0.004824
 31 0.004823
 32 0.004824
 33 0.004824
 34 0.004823
 35 0.004822
 36 0.004825
 37 0.004824
 38 0.004824
 39 0.004825
 40 0.004825
 41 0.004823
 42 0.004826
 43 0.004825
 44 0.004825
 45 0.004826
 46 0.004825
 47 0.004825
 48 0.004825
 49 0.004825
 50 0.004826

General Statistics	
Mean	0.00482524
Standard Error	2.43512E-07
Median	0.00482505
Mode	0.0048248
Standard Deviation	1.72189E-06
Sample Variance	2.9649E-12
Kurtosis	0.799197657
Skewness	0.483053816
Range	8.4E-06
Minimum	0.0048215
Maximum	0.0048299
Sum	0.241262
Count	50
Largest(1)	0.0048299
Smallest(1)	0.0048215
Confidence Level(95.0%)	4.89355E-07

Vital Flow Statistics
NIST Traceable = 0.004814
Upper Limit 95%= 0.004826
Mean= 0.004825
Lower Limit 95%= 0.004825
Bias(Mean-NIST)= 0.000011
StdDev%= 0.035685

Flow Stand s/n= _____
Internal Noz s/n= _____
External Noz s/n= _____



Comments: _____

Model 644 Mass Flow Stand using .044 external sonic nozzle

644-CCDI Flow Stand using internal .031 CCDI calibrated nozzle

Nov-04

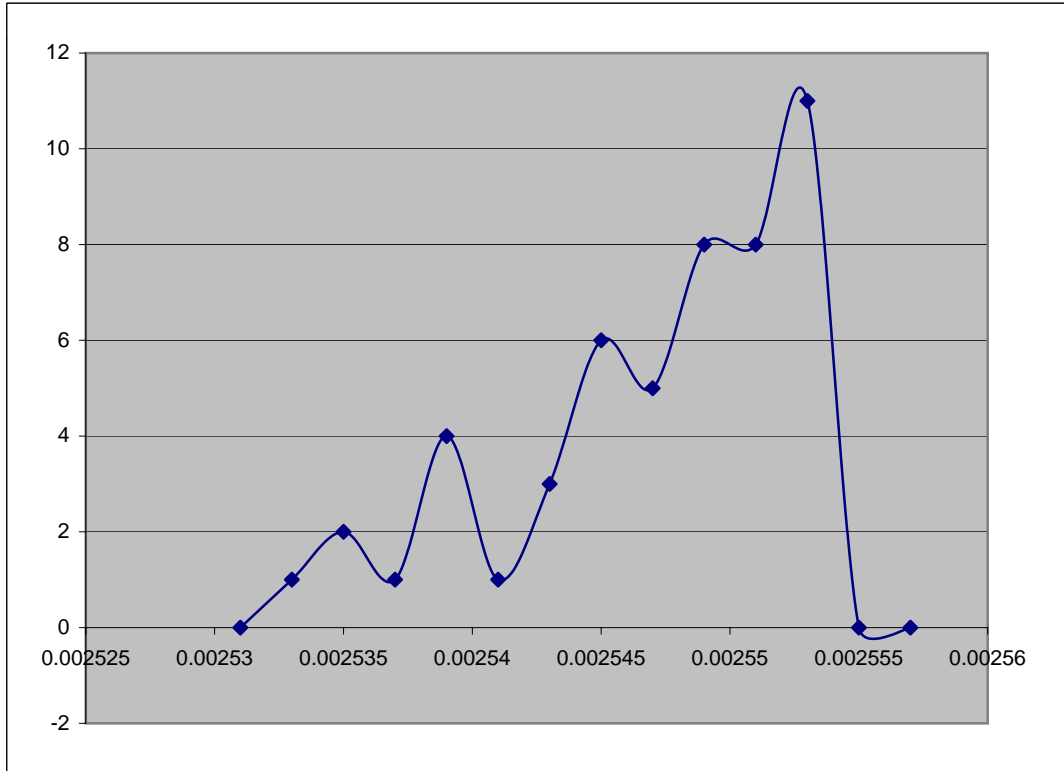
n (lbm/sec)

1 0.0025324
 2 0.0025343
 3 0.0025343
 4 0.0025359
 5 0.0025372
 6 0.0025371
 7 0.0025381
 8 0.0025386
 9 0.0025404
 10 0.0025411
 11 0.0025414
 12 0.0025422
 13 0.002543
 14 0.0025441
 15 0.0025433
 16 0.0025436
 17 0.002545
 18 0.0025455
 19 0.0025447
 20 0.0025454
 21 0.0025448
 22 0.0025464
 23 0.0025475
 24 0.0025481
 25 0.0025464
 26 0.0025481
 27 0.0025475
 28 0.0025487
 29 0.0025479
 30 0.0025484
 31 0.0025484
 32 0.0025493
 33 0.0025496
 34 0.0025495
 35 0.0025497
 36 0.0025508
 37 0.00255
 38 0.0025504
 39 0.0025506
 40 0.002551
 41 0.0025512
 42 0.0025516
 43 0.0025517
 44 0.0025517
 45 0.002552
 46 0.0025517
 47 0.0025519
 48 0.0025523
 49 0.0025526
 50 0.0025526

General Statistics	
Mean	0.002546
Standard Error	7.82419E-07
Median	0.0025477
Mode	0.0025517
Standard Deviation	5.53254E-06
Sample Variance	3.0609E-11
Kurtosis	-0.25156097
Skewness	-0.84054024
Range	2.02E-05
Minimum	0.0025324
Maximum	0.0025526
Sum	0.1273
Count	50
Largest(1)	0.0025526
Smallest(1)	0.0025324
Confidence Level(95.0%)	1.57233E-06

Vital Flow Statistics
NIST Traceable =
Upper Limit 95%= 0.002548
Mean= 0.002546
Lower Limit 95%= 0.002544
Bias(Mean-NIST)= #VALUE!
StdDev%= 0.217303

Flow Stand s/n= _____
Internal Noz s/n= _____
External Noz s/n= _____



Comments: _____

Model 644 Mass Flow Stand using .031 external sonic nozzle

644-CCDI Flow Stand using internal .025 CCDI calibrated nozzle

Nov-04

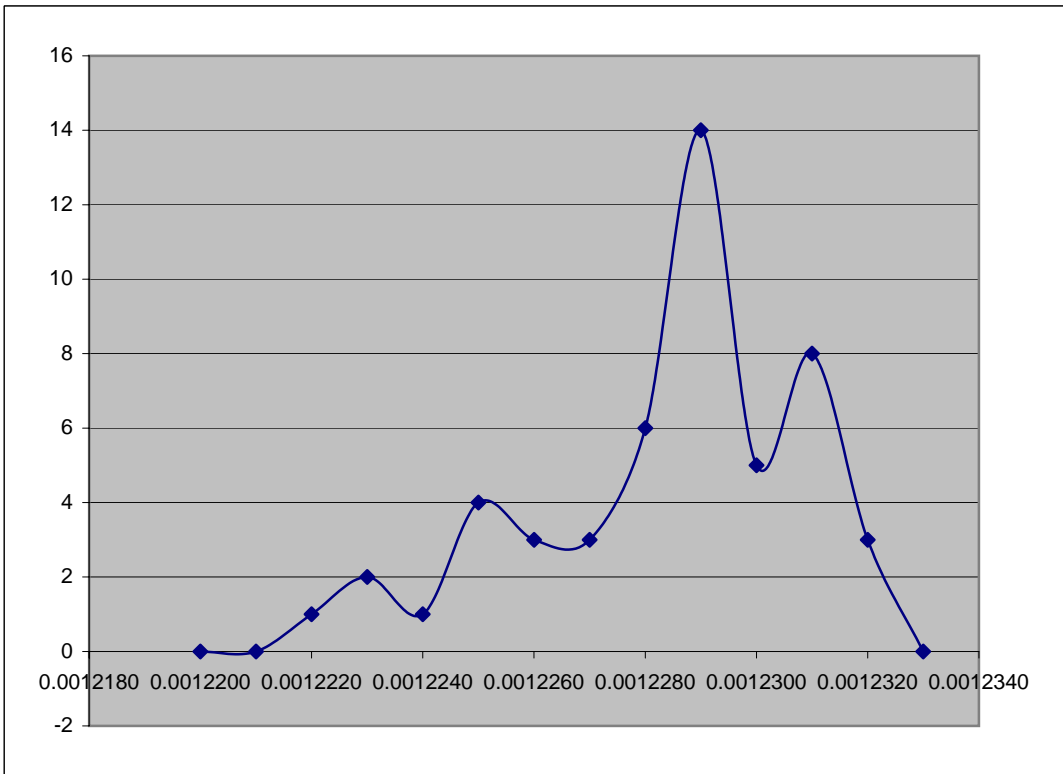
n (lbm/sec)

1 0.0012218
 2 0.0012228
 3 0.0012228
 4 0.0012237
 5 0.0012242
 6 0.0012243
 7 0.0012244
 8 0.0012250
 9 0.0012253
 10 0.0012257
 11 0.0012259
 12 0.0012262
 13 0.0012263
 14 0.0012265
 15 0.0012271
 16 0.0012273
 17 0.0012276
 18 0.0012277
 19 0.0012277
 20 0.0012280
 21 0.0012281
 22 0.0012282
 23 0.0012283
 24 0.0012283
 25 0.0012284
 26 0.0012285
 27 0.0012285
 28 0.0012286
 29 0.0012289
 30 0.0012289
 31 0.0012289
 32 0.0012289
 33 0.0012289
 34 0.0012290
 35 0.0012291
 36 0.0012291
 37 0.0012297
 38 0.0012298
 39 0.0012300
 40 0.0012301
 41 0.0012302
 42 0.0012303
 43 0.0012305
 44 0.0012306
 45 0.0012307
 46 0.0012307
 47 0.0012308
 48 0.0012312
 49 0.0012313
 50 0.0012319

General Statistics	
Mean	0.001227934
Standard Error	3.45851E-07
Median	0.00122845
Mode	0.0012289
Standard Deviation	2.44554E-06
Sample Variance	5.98066E-12
Kurtosis	-0.139600993
Skewness	-0.719982183
Range	1.01E-05
Minimum	0.0012218
Maximum	0.0012319
Sum	0.0613967
Count	50
Largest(1)	0.0012319
Smallest(1)	0.0012218
Confidence Level(95.0%)	6.95014E-07

Vital Flow Statistics
NIST Traceable = 0.0012227
Upper Limit 95%= 0.001229
Mean= 0.001228
Lower Limit 95%= 0.001227
Bias(Mean-NIST)= 0.000005
StdDev%= 0.199159

Flow Stand s/n= _____
Internal Noz s/n= _____
External Noz s/n= _____



Comments: _____
