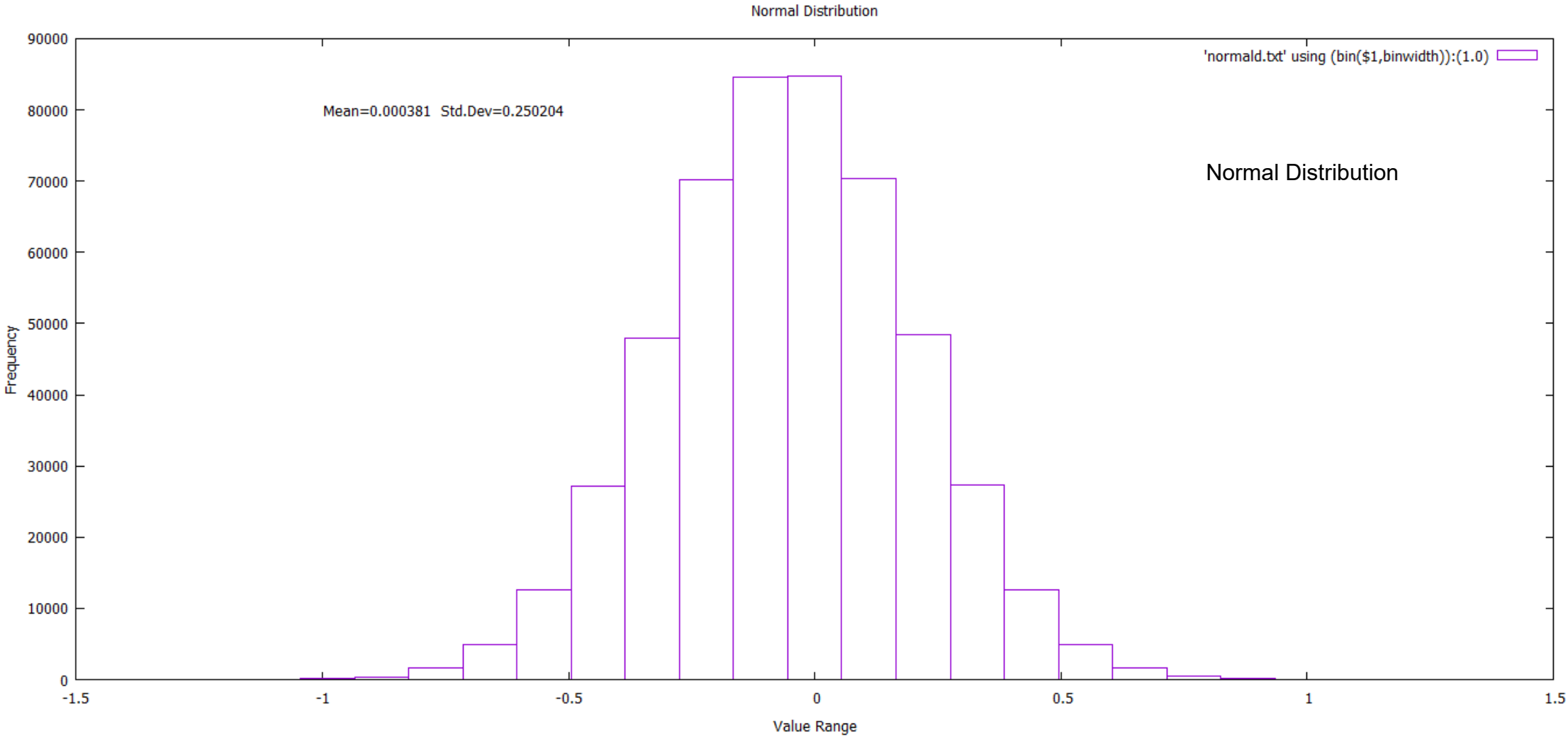
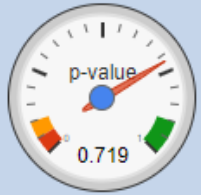

Normal Distribution
'normald.txt' using (bin($1,binwidth)):(1.0)
Mean=0.000381 Std.Dev=0.250204
Normal Distribution
Frequency
Value Range
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
-1.5
-1
-0.5
0
0.5
1
1.5

Results

n:	5000	sample size
$\bar{x}$:	0.000261342	sample average
median:	0.000801	sample median
S:	0.250116	sample standard deviation
SS:	312.728111	Sum of Squares
b:	17.681503	b statistic
skewness:	-0.00110469	potentially **symmetrical** (z=0)
Excess kurtosis:	-0.0683631	potentially **mesokurtic**, normal like tailes
p-value:	0.718649	the probability the data was sampled from a normal distribution
Outliers	-0.855722,-0.822	observation point that is distant from other observations



Results of NIST Tests

Shapiro-Wilk test, using right tailed normal distribution

1. H_0 hypothesis

Since p-value > α, we accept the H_0.

It is assumed that the data is normally distributed.

In other words, the difference between the data sample and the normal distribution is not big enough to be statistically significant.

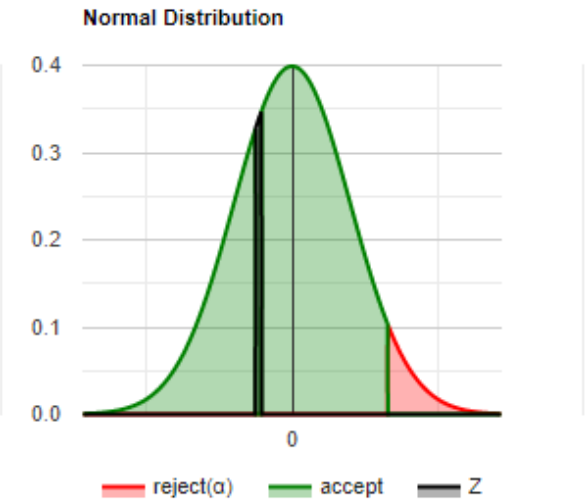
2. P-value

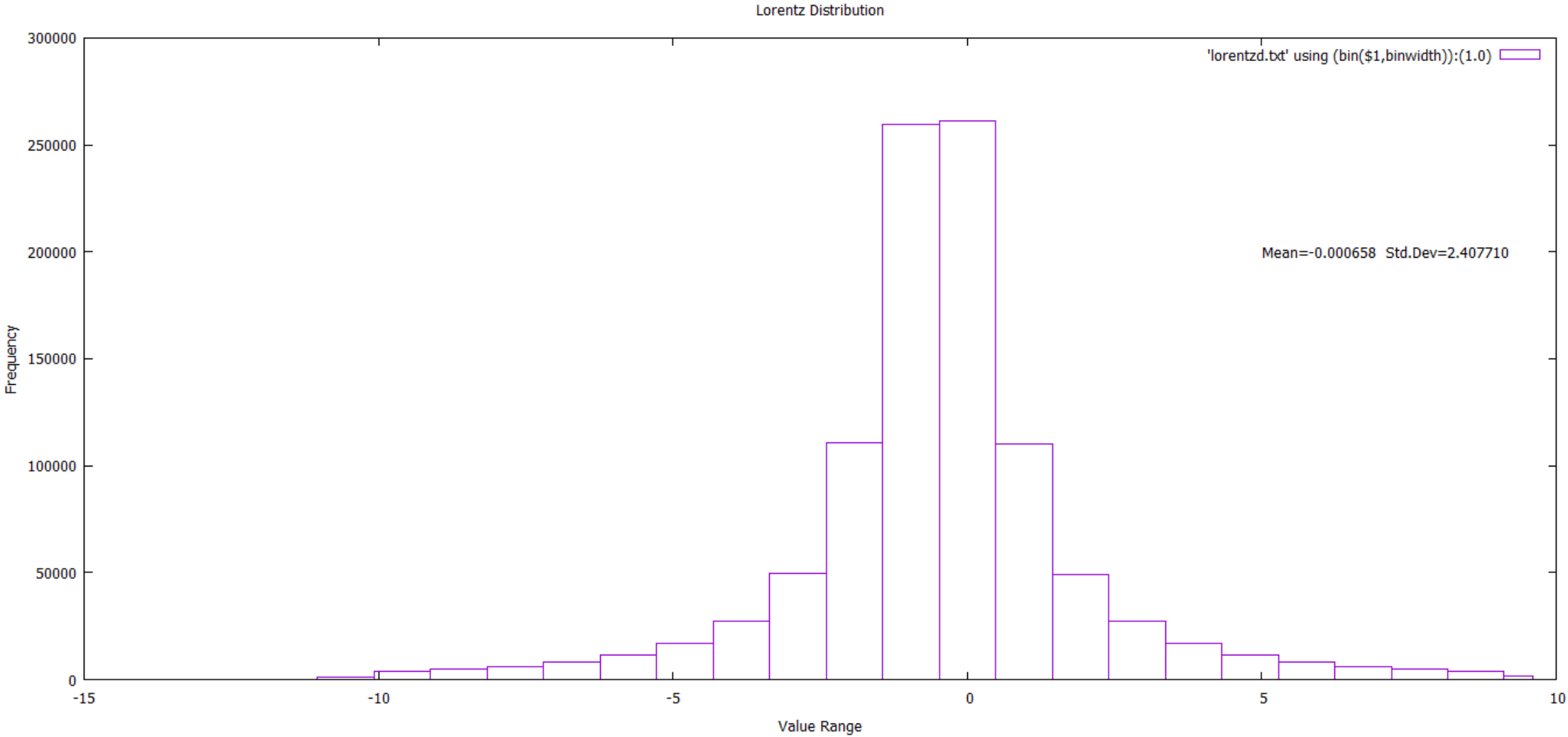
p-value is **0.718649**, hence, if we would reject H_0, the chance of type1 error (rejecting a correct H_0) would be too high: 0.7186 (71.86%)

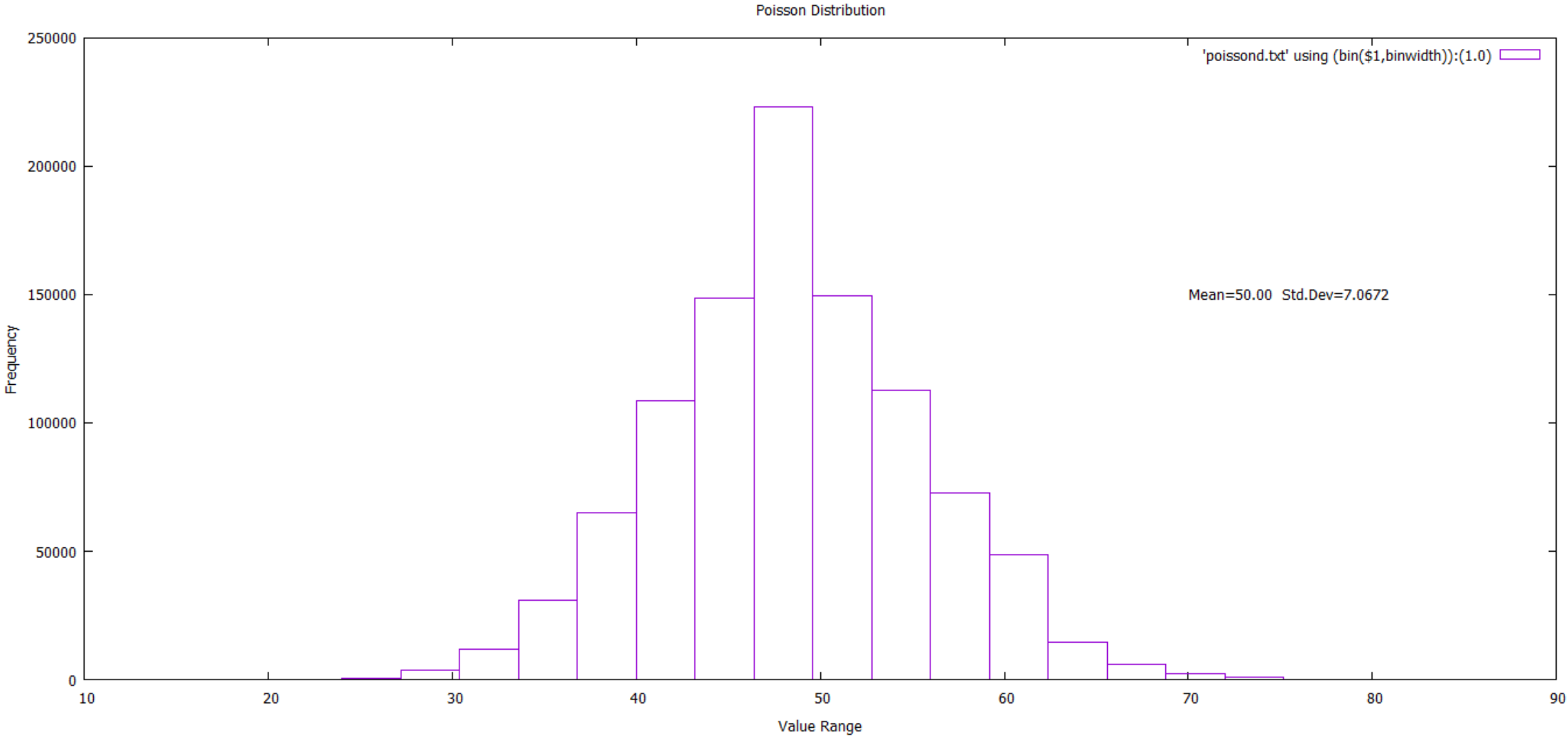
The larger the p-value, the more it supports H_0

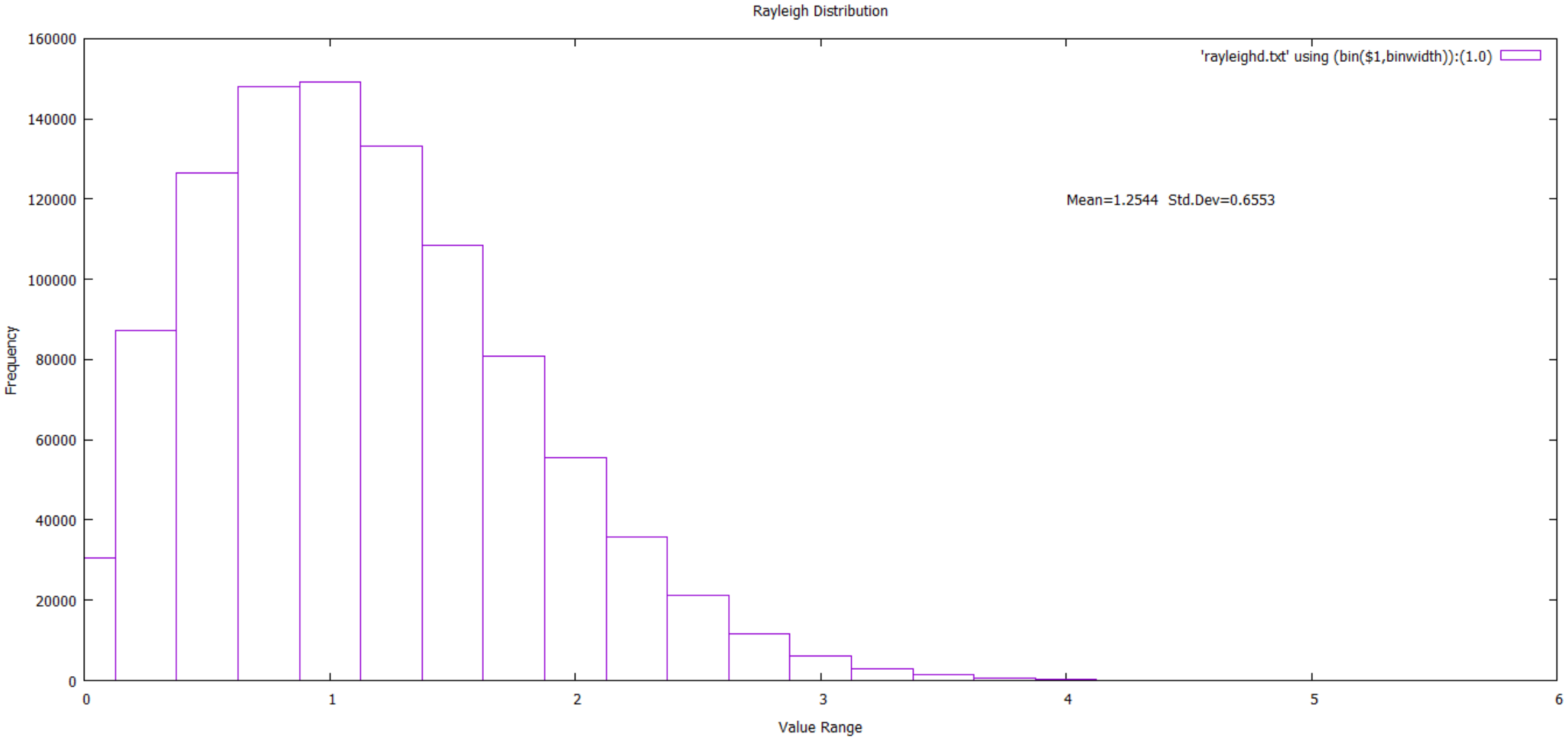
3. The statistics

W is **0.999704**. It is in the 95% critical value accepted range: [0.9993 : 1.0000]




Lorentz Distribution
'lorentzd.txt' using (bin($1,binwidth)):(1.0)
Mean=-0.000658 Std.Dev=2.407710
Frequency
Value Range
300000
250000
200000
150000
100000
50000
0
-15
-10
-5
0
5
10


Poisson Distribution
'poissond.txt' using (bin($1,binwidth)):(1.0)
Mean=50.00 Std.Dev=7.0672
Frequency
Value Range
250000
200000
150000
100000
50000
0
10
20
30
40
50
60
70
80
90


Rayleigh Distribution
'rayleighd.txt' using (bin($1,binwidth)):(1.0)
Mean=1.2544 Std.Dev=0.6553
Frequency
Value Range
160000
140000
120000
100000
80000
60000
40000
20000
0
0
1
2
3
4
5
6