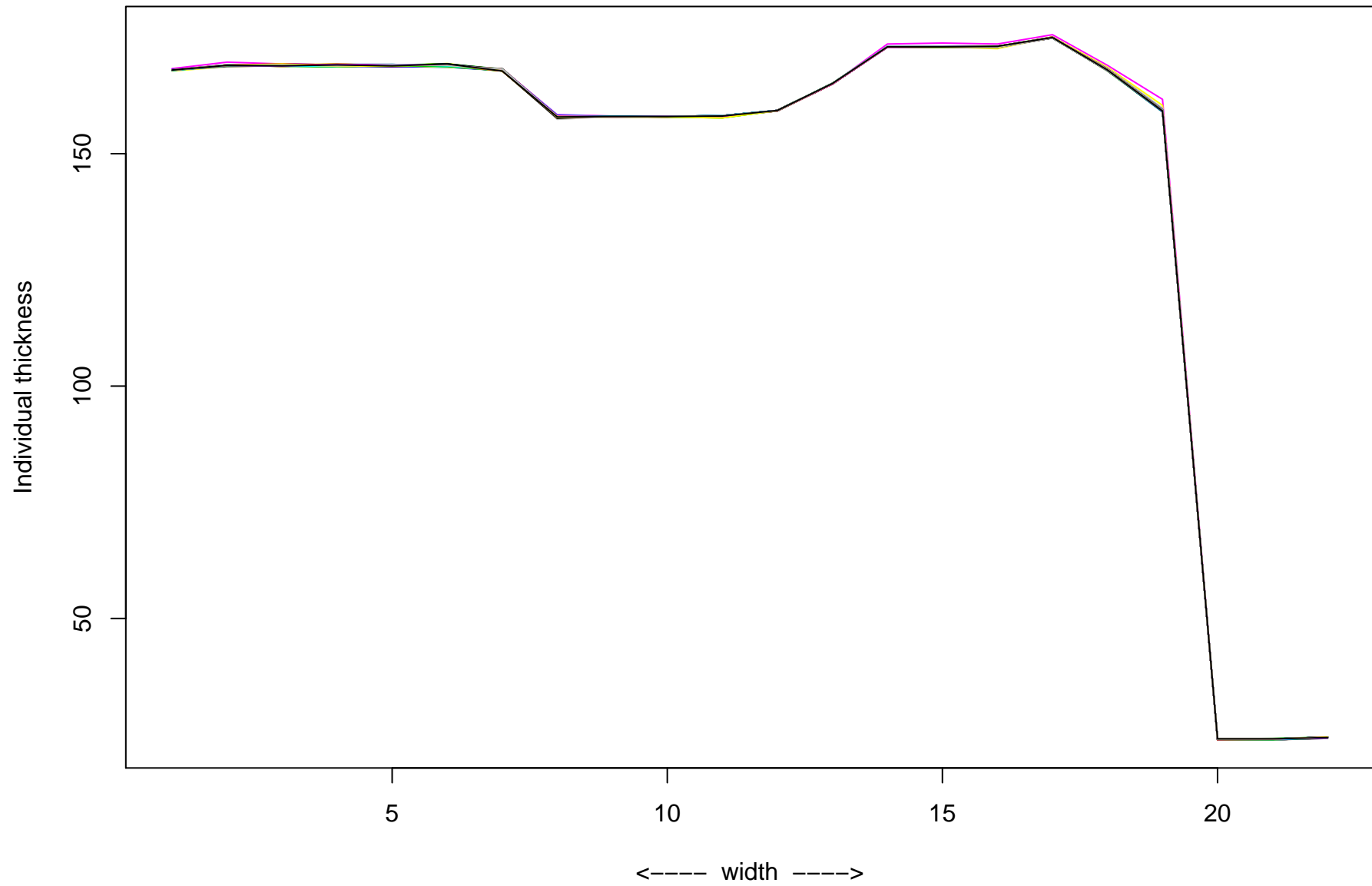
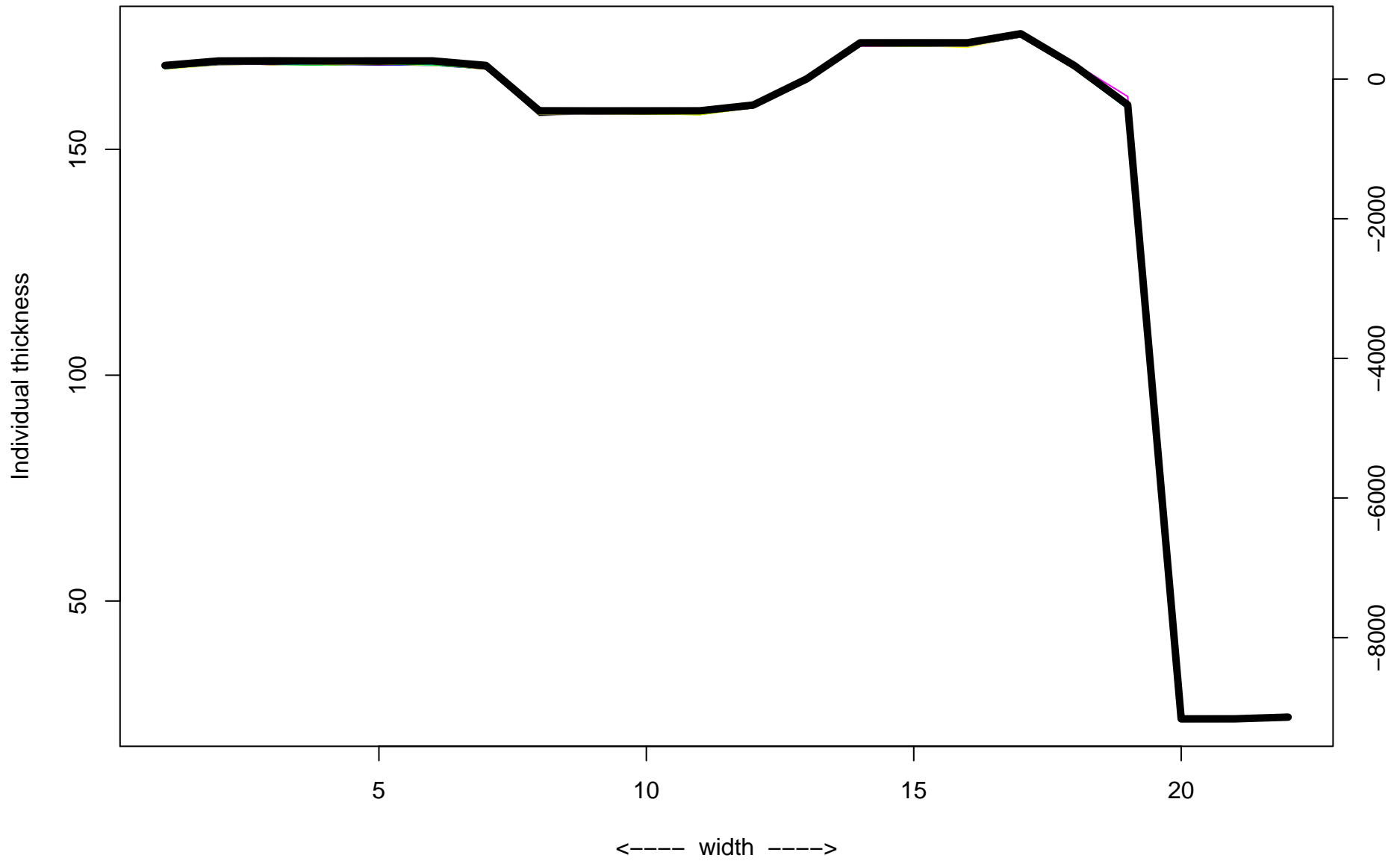


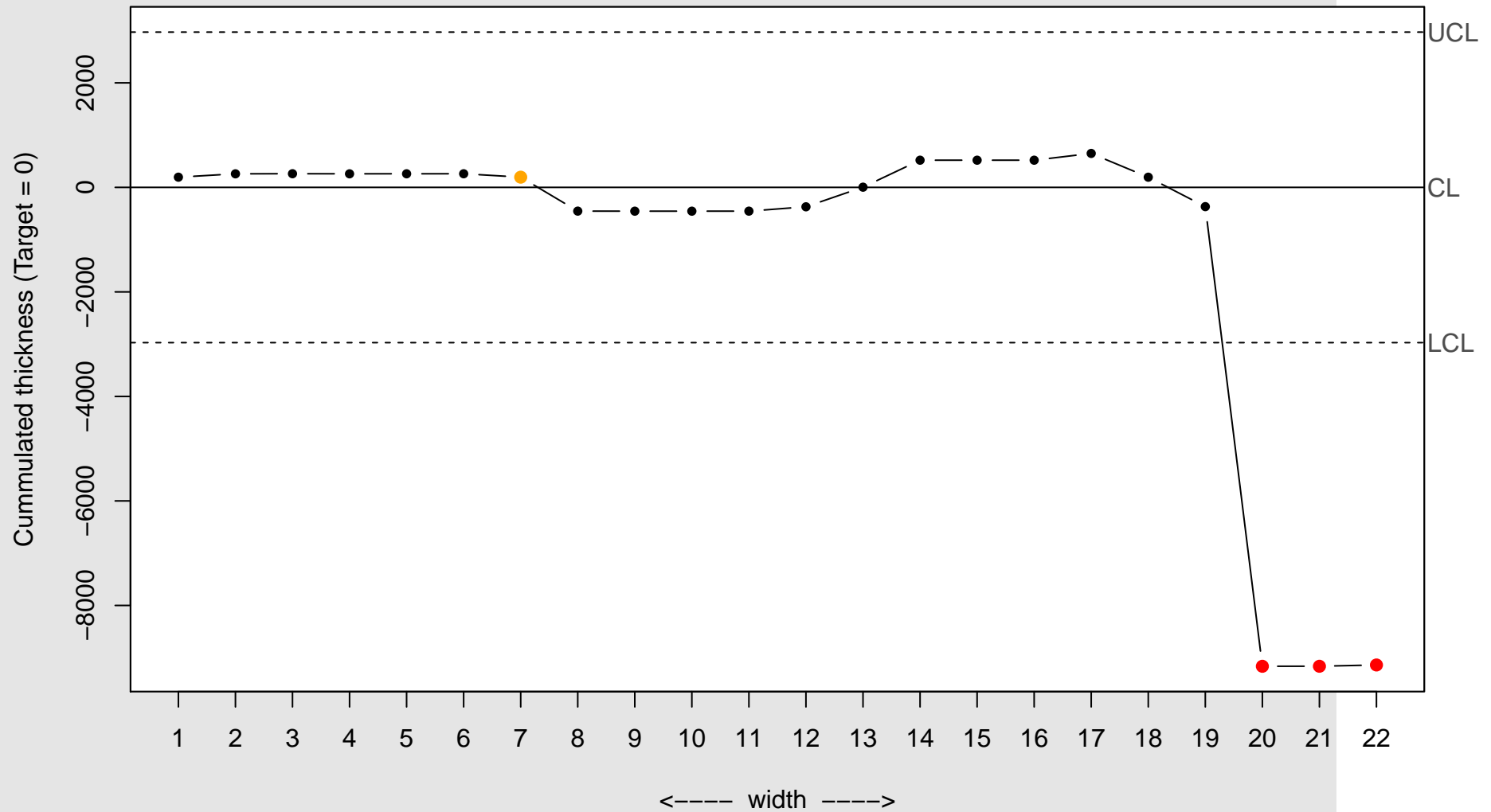
# Individual thickness only



# Simulated thickness



## Simulated thickness



Number of groups = 22

Center = 0

StdDev = 495.179

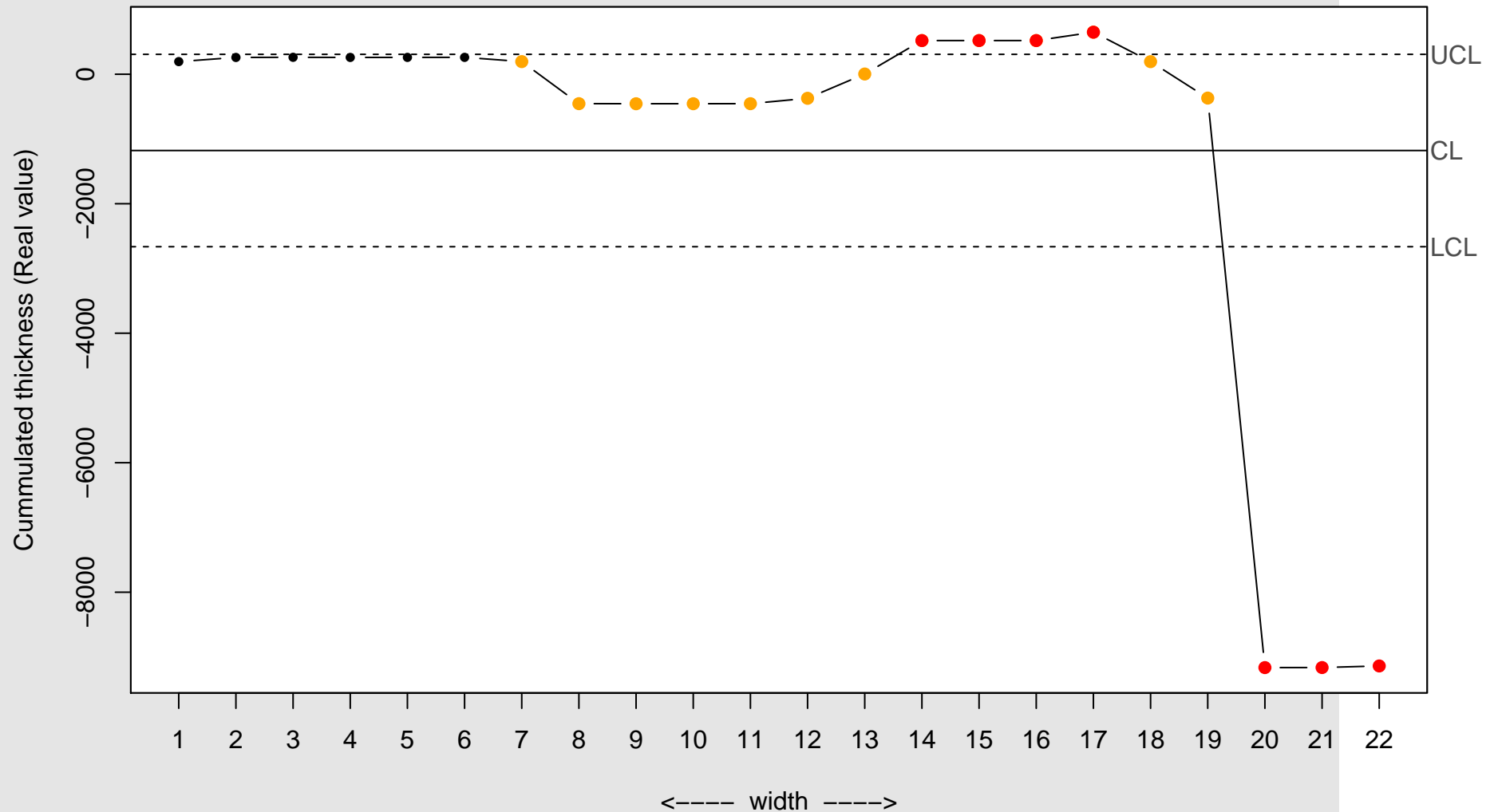
LCL = -2971.074

UCL = 2971.074

Number beyond limits = 3

Number violating runs = 1

Simulated thickness: Cpk is  $-0.117$  and  $z$  is  $-1.851$ .

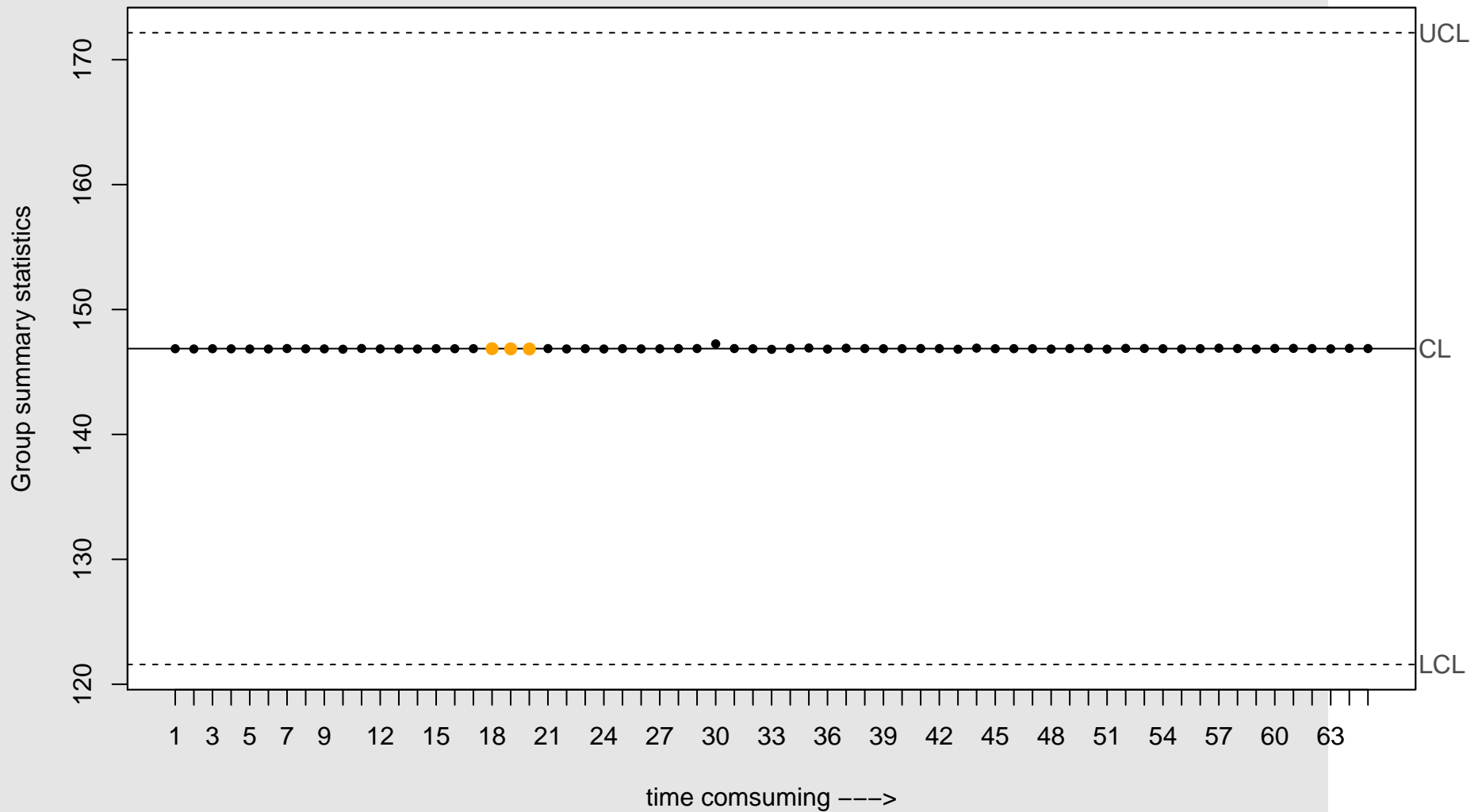


Number of groups = 22  
Center =  $-1178.468$   
StdDev =  $495.179$

LCL =  $-2664.005$   
UCL =  $307.0688$

Number beyond limits = 7  
Number violating runs = 13

X-bar chart for a given dataset

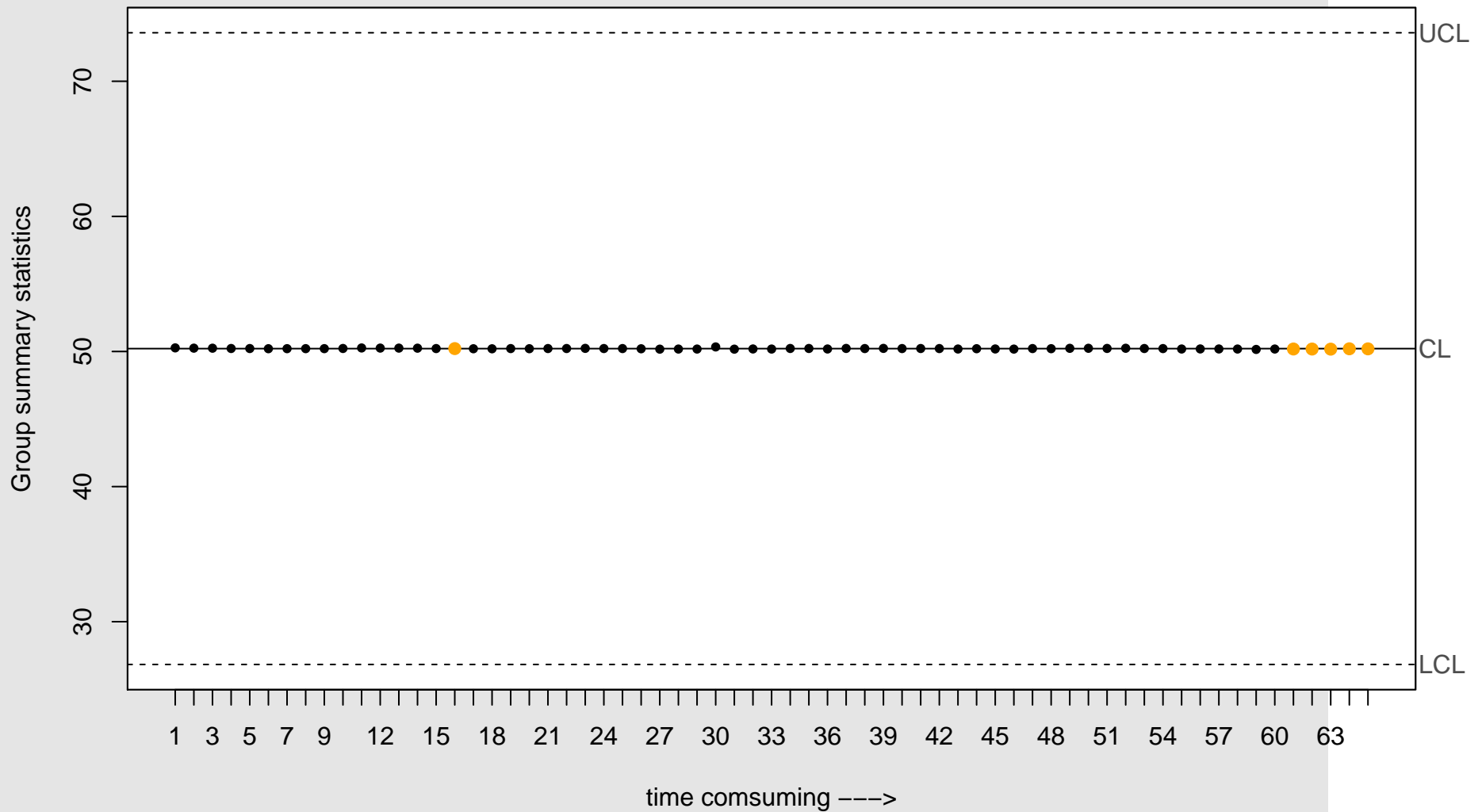


Number of groups = 65  
Center = 146.8697  
StdDev = 39.53512

LCL = 121.583  
UCL = 172.1565

Number beyond limits = 0  
Number violating runs = 3

S chart for a given dataset

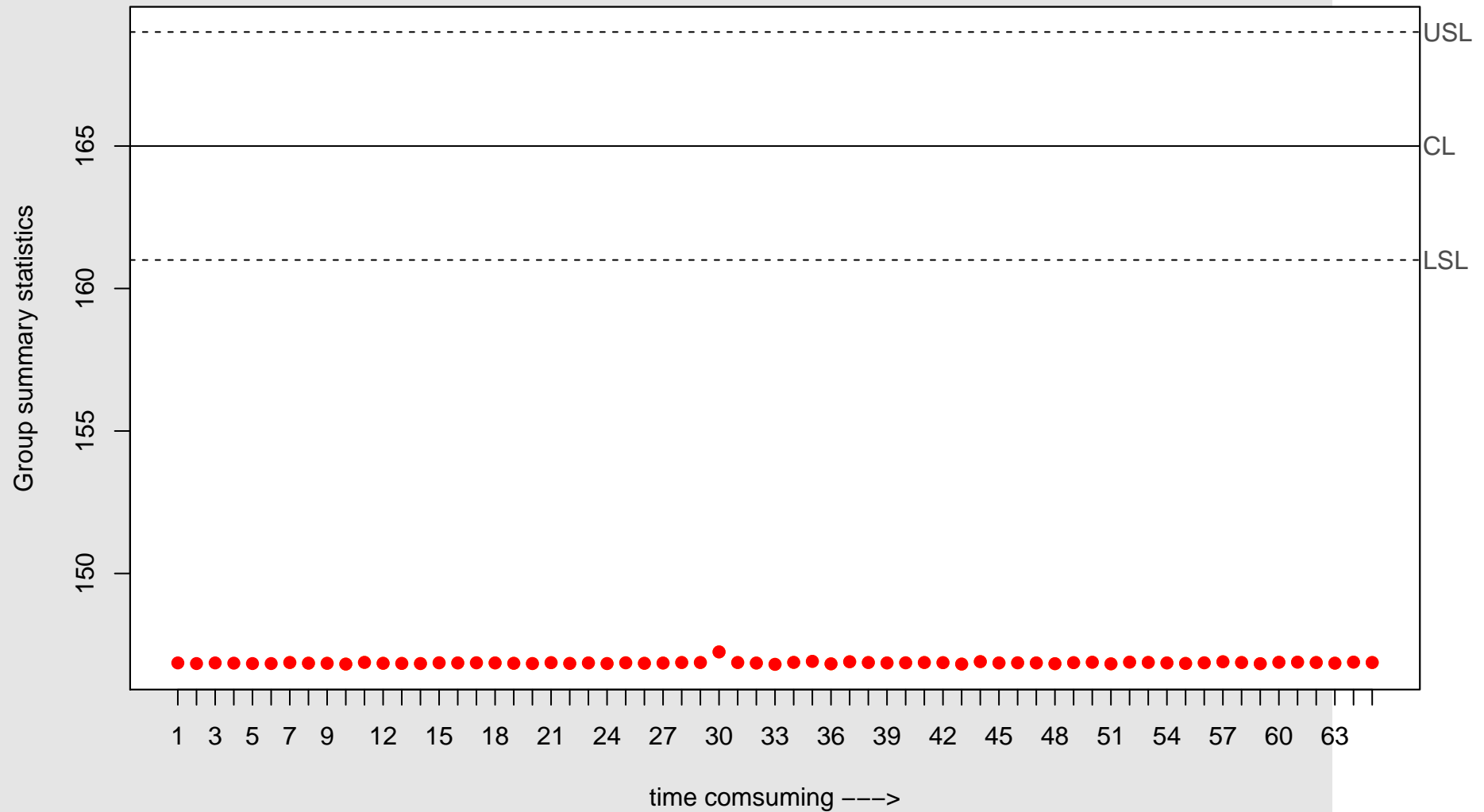


Number of groups = 65  
Center = 50.21229  
StdDev = 50.8134

LCL = 26.83393  
UCL = 73.59065

Number beyond limits = 0  
Number violating runs = 6

**X-bar chart using USL/LSL for a given dataset**



Number of groups = 65

Center = 165

StdDev = 39.53512

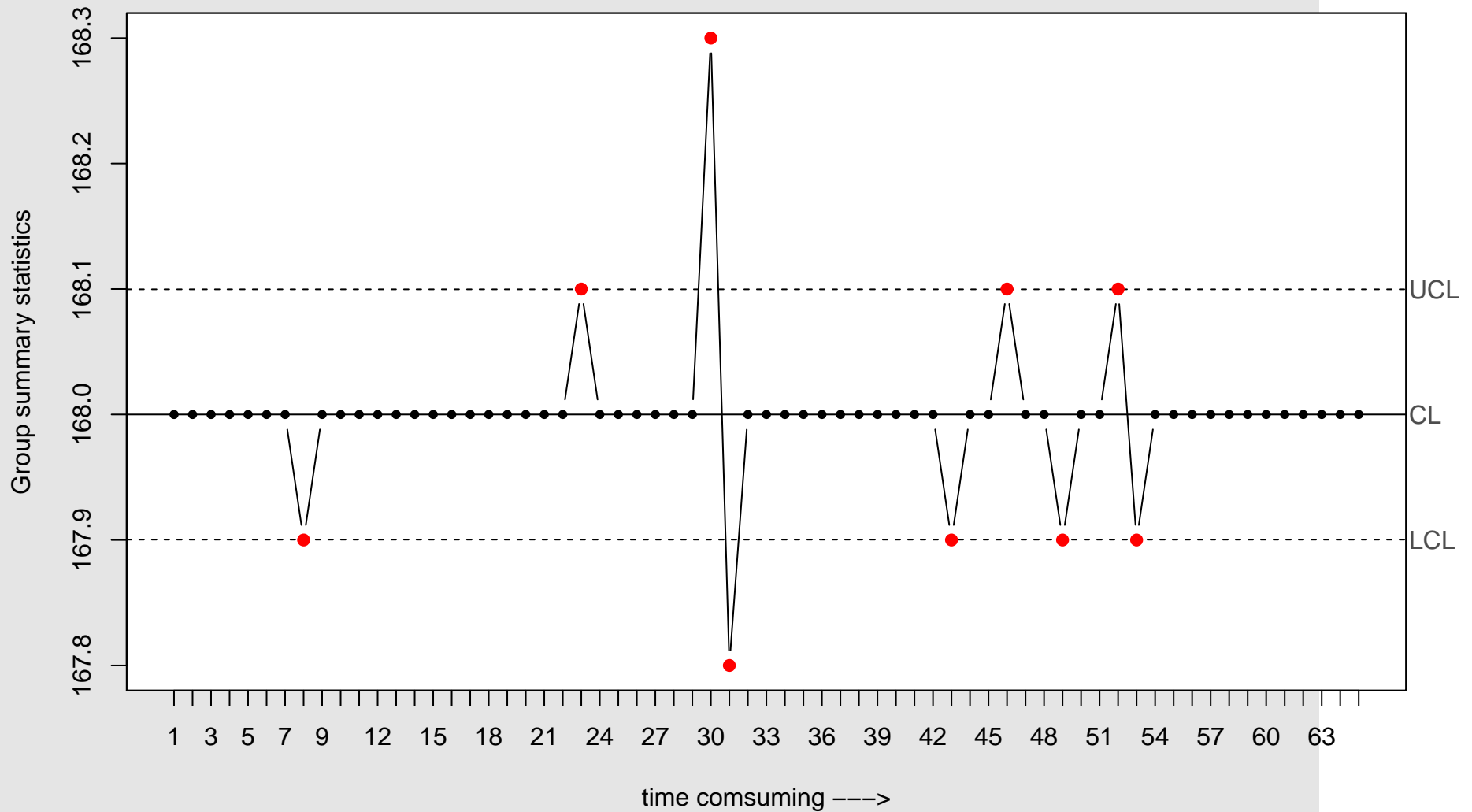
LCL = 161

UCL = 169

Number beyond limits = 65

Number violating runs = 59

# 1th column point of this product



Number of groups = 65

Center = 168

StdDev = 0.03324468

LCL = 167.9003

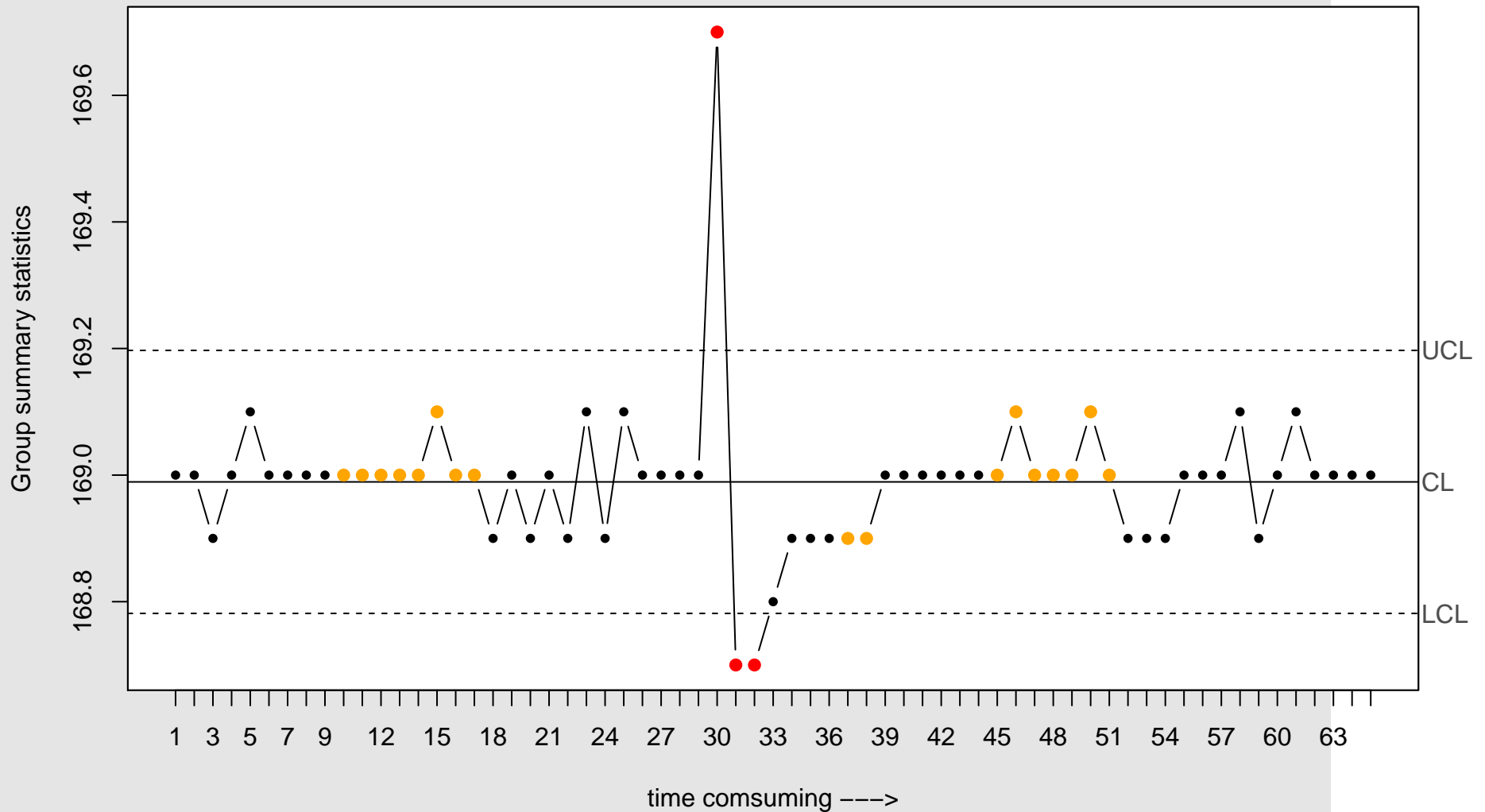
UCL = 168.0997

Number beyond limits = 9

Number violating runs = 0



## 2th column point of this product

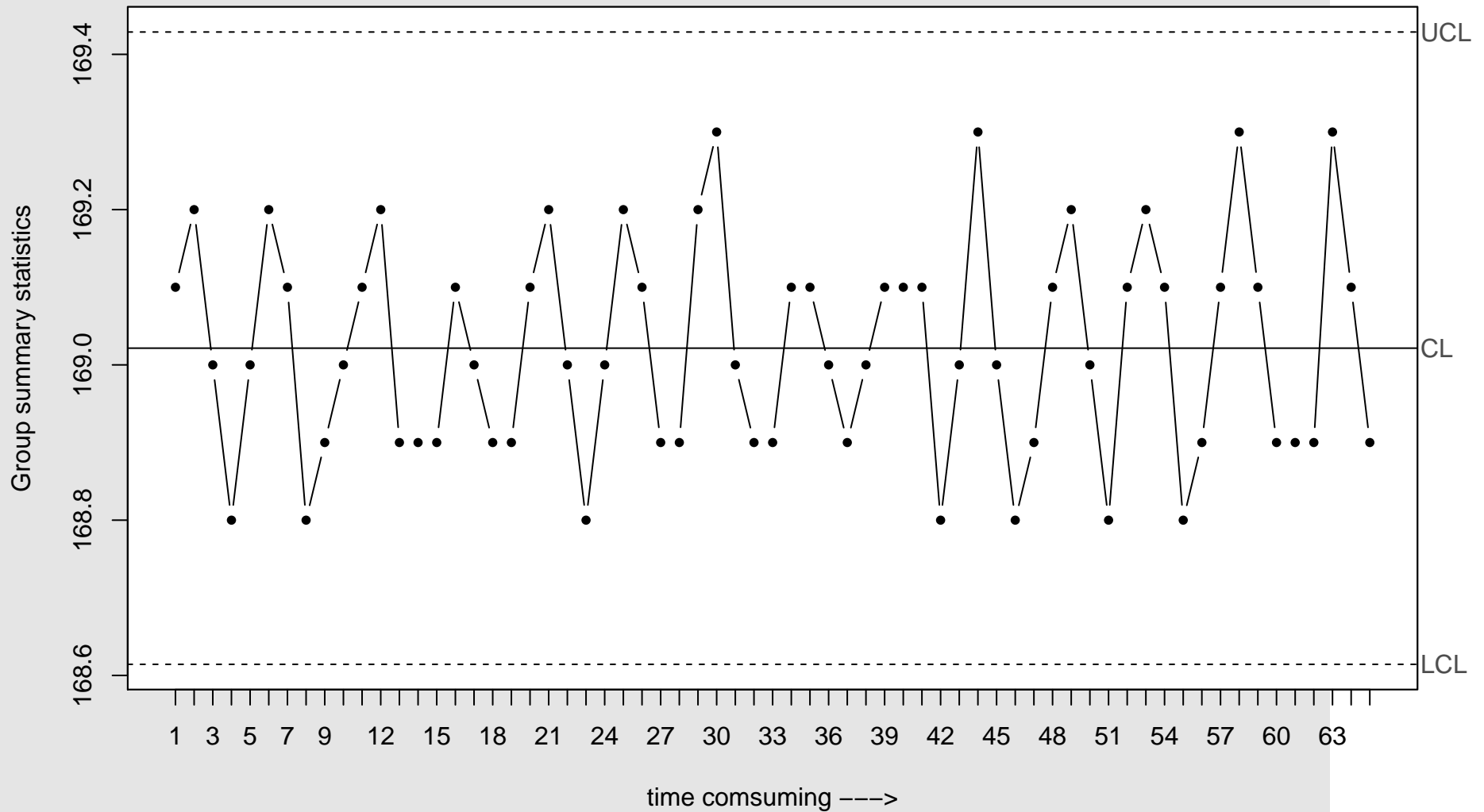


Number of groups = 65  
Center = 168.9892  
StdDev = 0.06925975

LCL = 168.7815  
UCL = 169.197

Number beyond limits = 3  
Number violating runs = 17

### 3th column point of this product



Number of groups = 65

Center = 169.0215

StdDev = 0.1357491

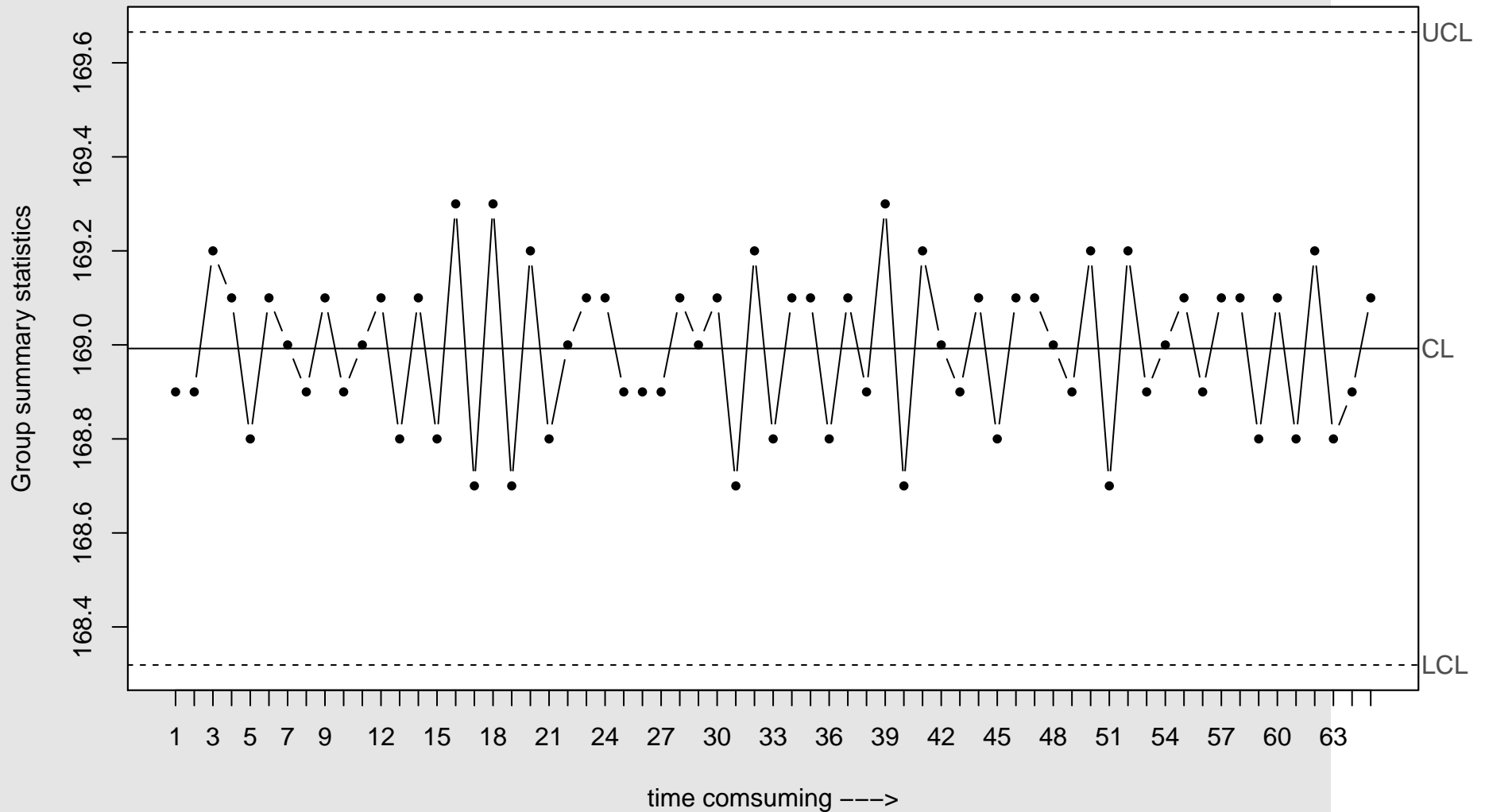
LCL = 168.6143

UCL = 169.4288

Number beyond limits = 0

Number violating runs = 0

### 4th column point of this product



Number of groups = 65

Center = 168.9923

StdDev = 0.2244016

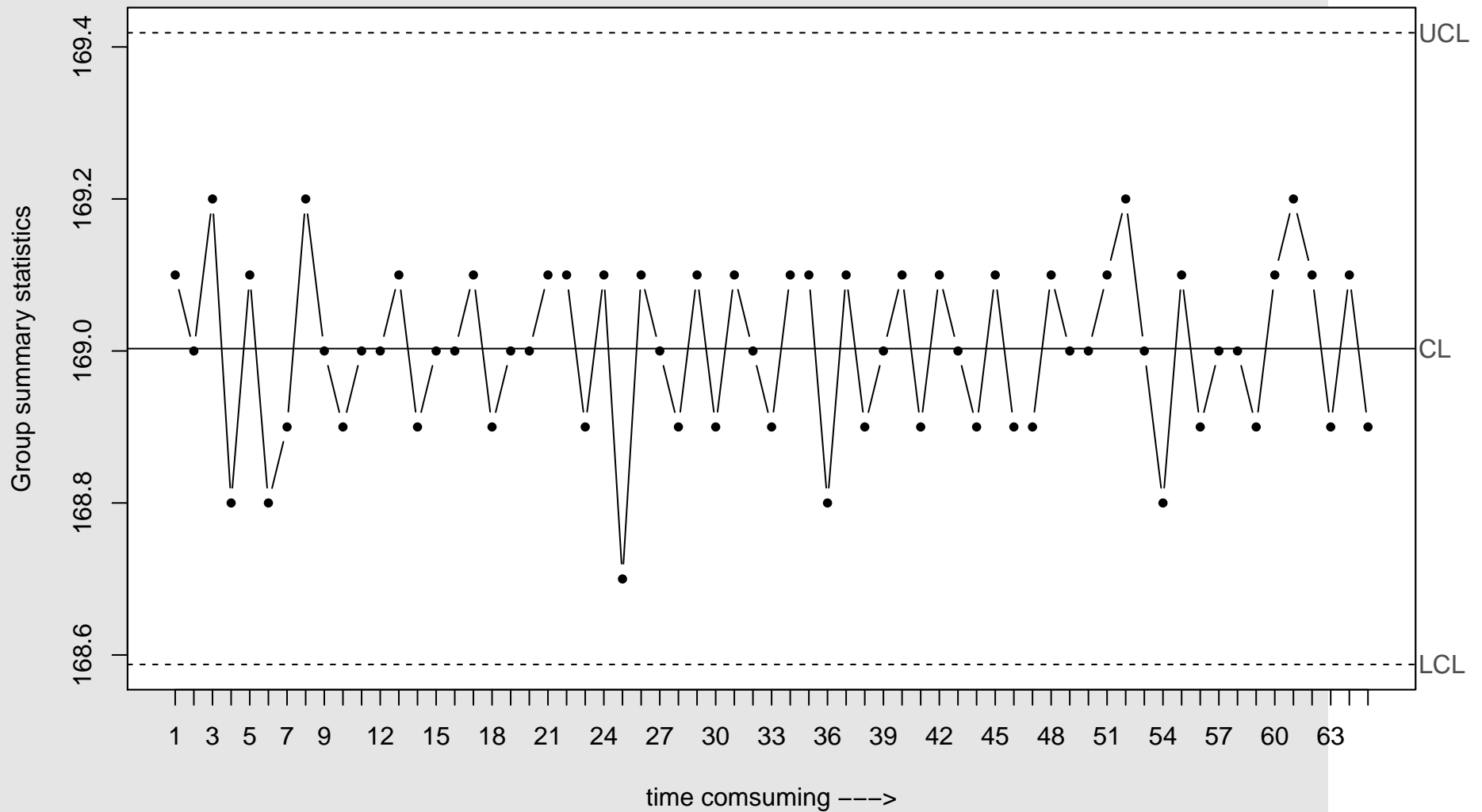
LCL = 168.3191

UCL = 169.6655

Number beyond limits = 0

Number violating runs = 0

### 5th column point of this product

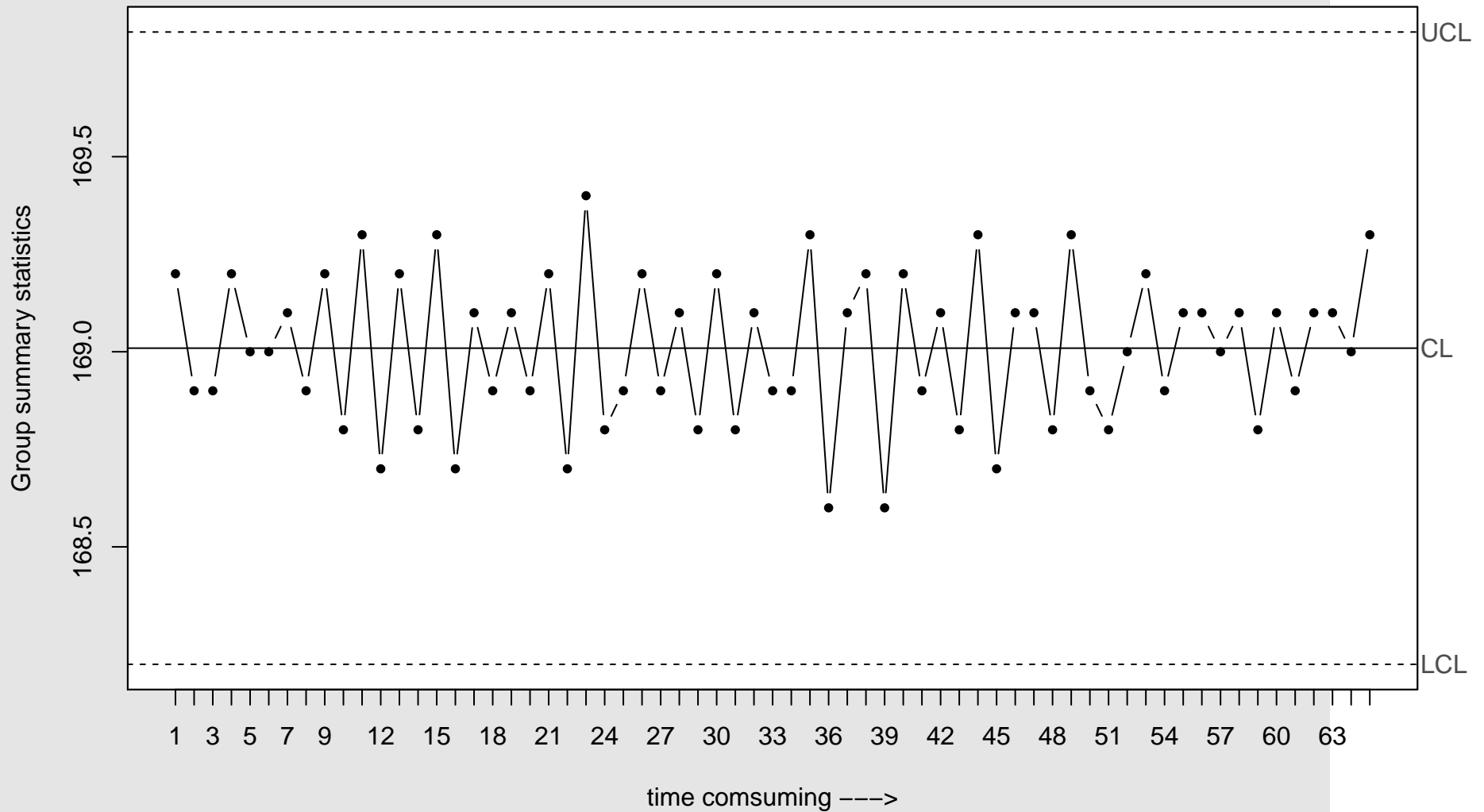


Number of groups = 65  
Center = 169.0031  
StdDev = 0.1385195

LCL = 168.5875  
UCL = 169.4186

Number beyond limits = 0  
Number violating runs = 0

### 6th column point of this product

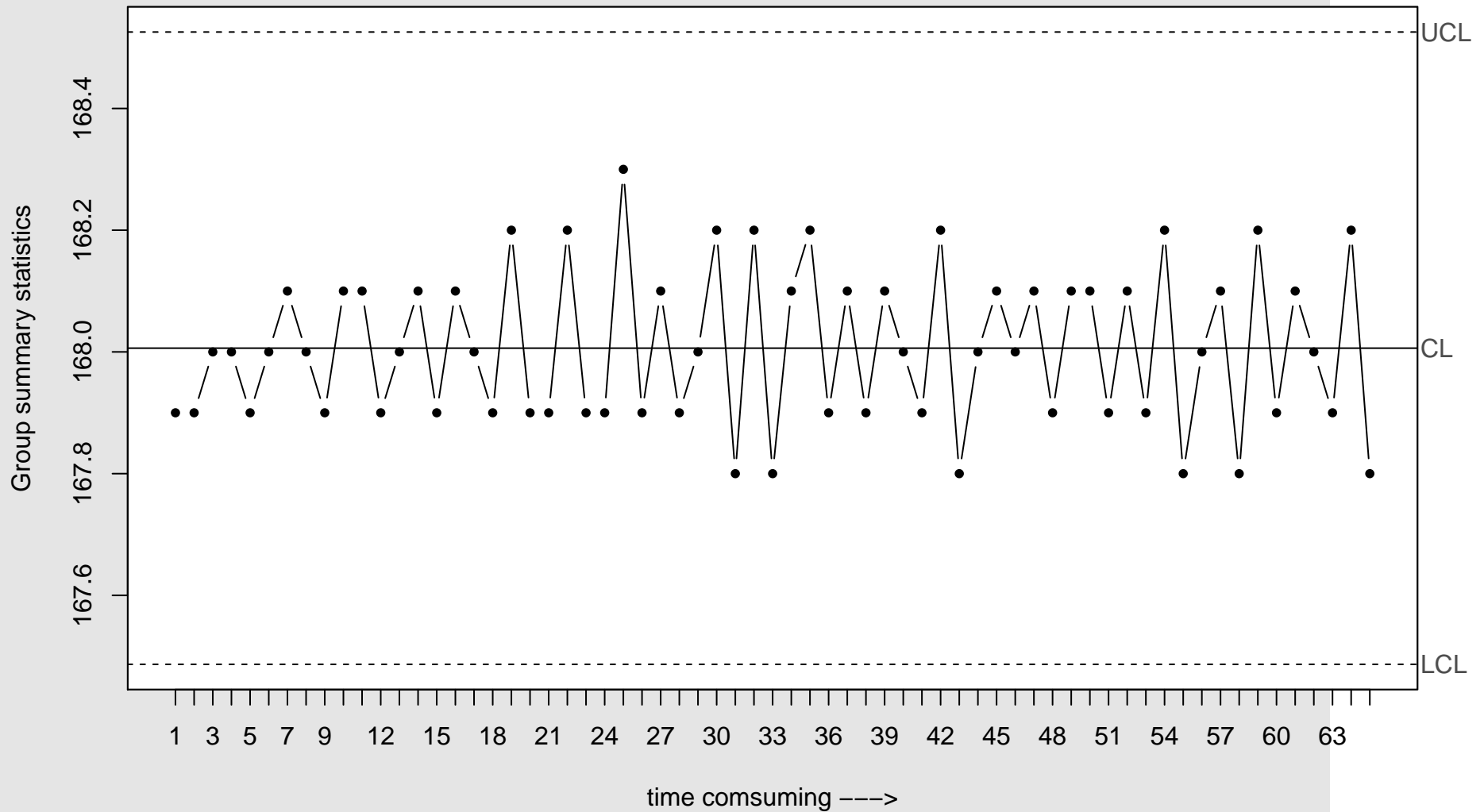


Number of groups = 65  
Center = 169.0092  
StdDev = 0.270113

LCL = 168.1989  
UCL = 169.8196

Number beyond limits = 0  
Number violating runs = 0

### 7th column point of this product



Number of groups = 65

Center = 168.0062

StdDev = 0.1731494

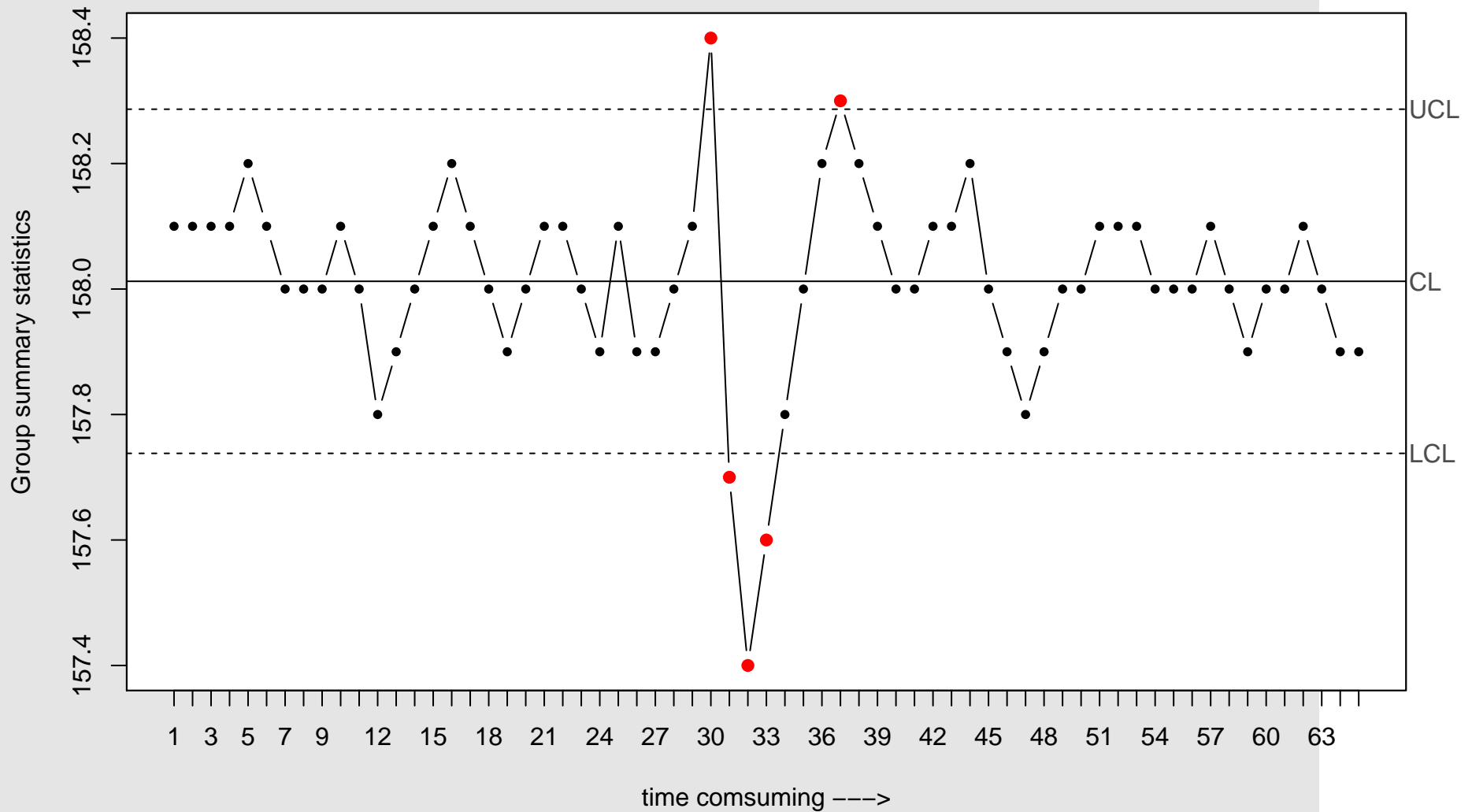
LCL = 167.4867

UCL = 168.5256

Number beyond limits = 0

Number violating runs = 0

# 8th column point of this product

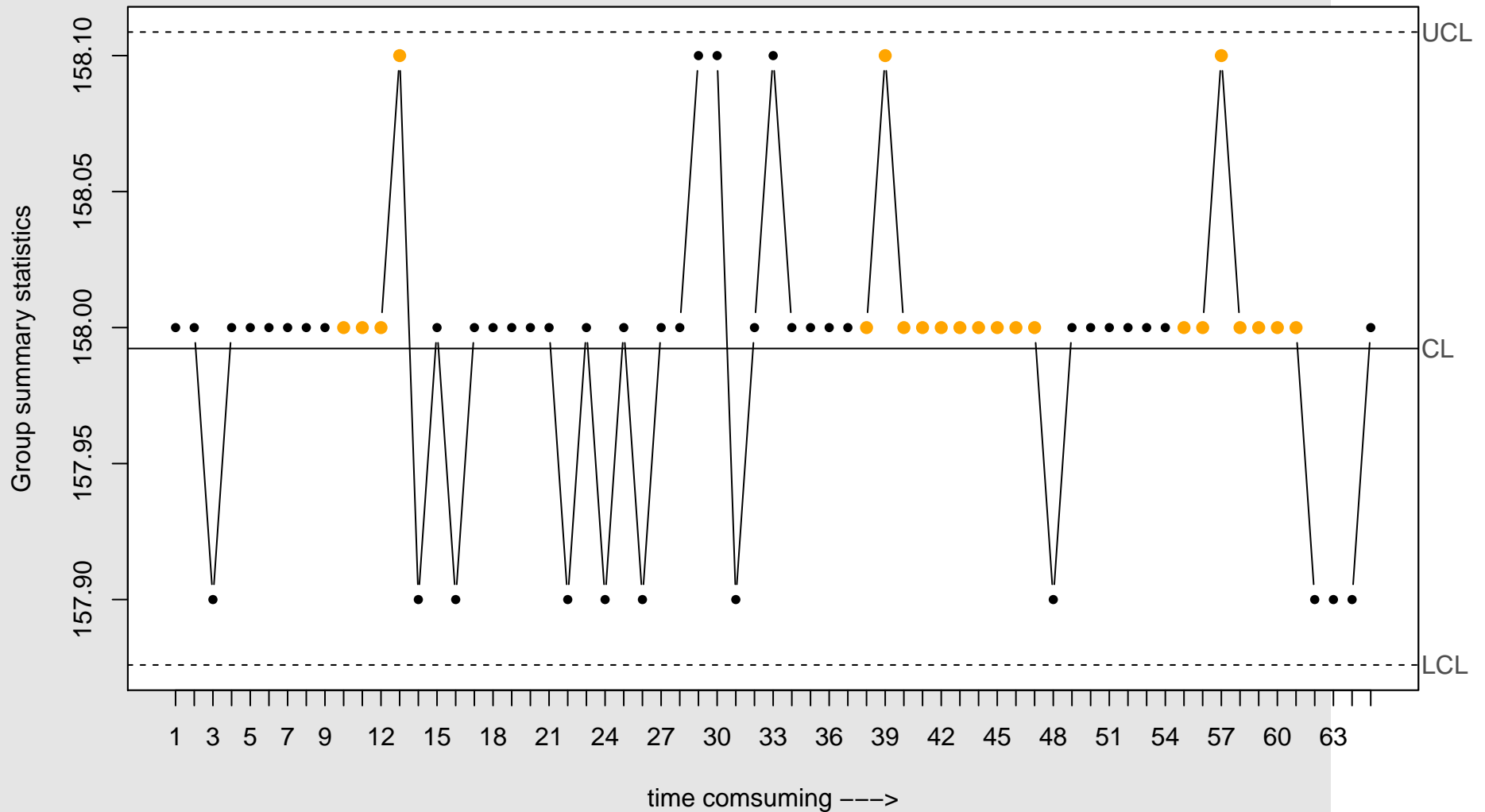


Number of groups = 65  
 Center = 158.0123  
 StdDev = 0.09142287

LCL = 157.738  
 UCL = 158.2866

Number beyond limits = 5  
 Number violating runs = 0

### 9th column point of this product



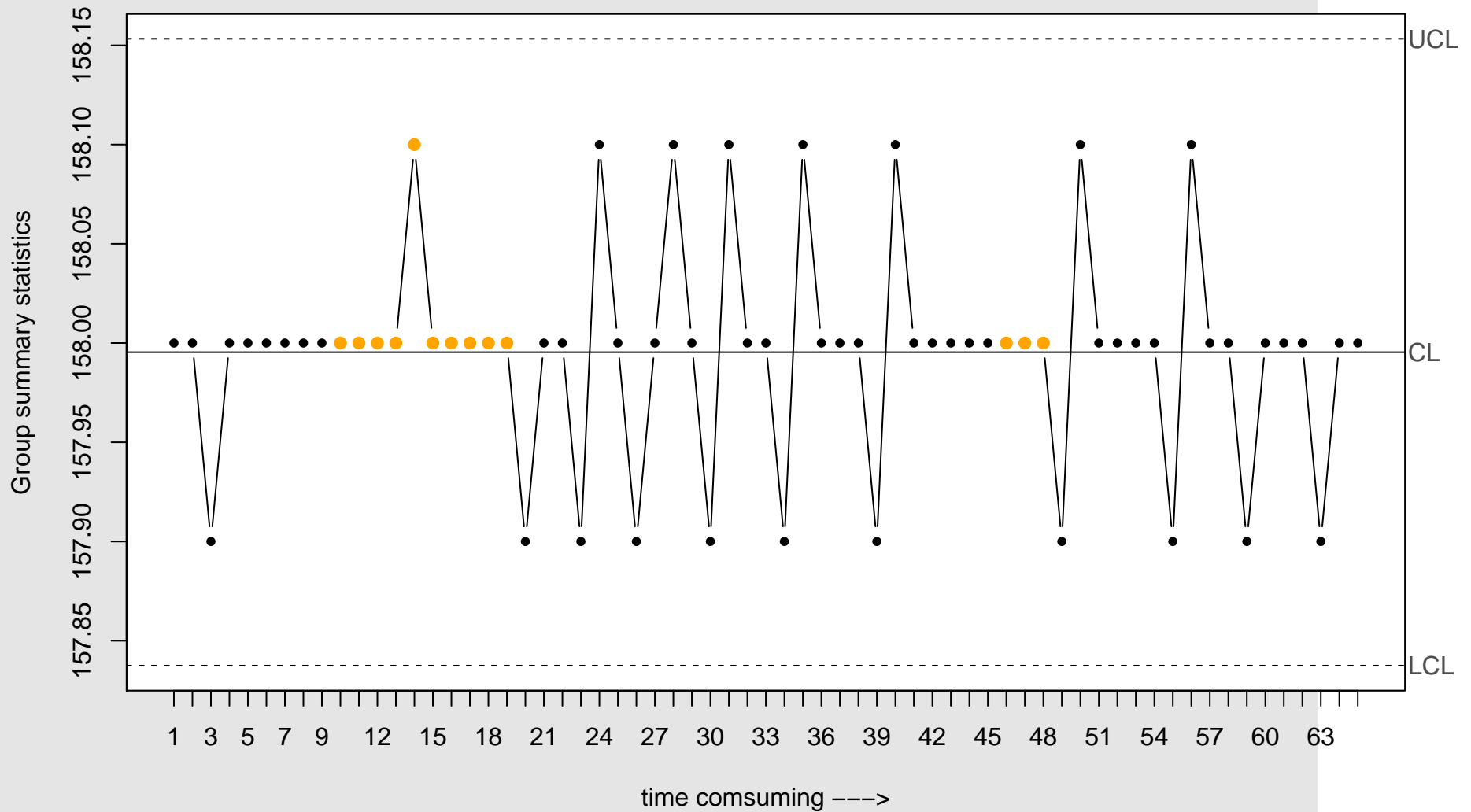
Number of groups = 65  
Center = 157.9923  
StdDev = 0.03878546

LCL = 157.876  
UCL = 158.1087

Number beyond limits = 0  
Number violating runs = 21



# 10th column point of this product

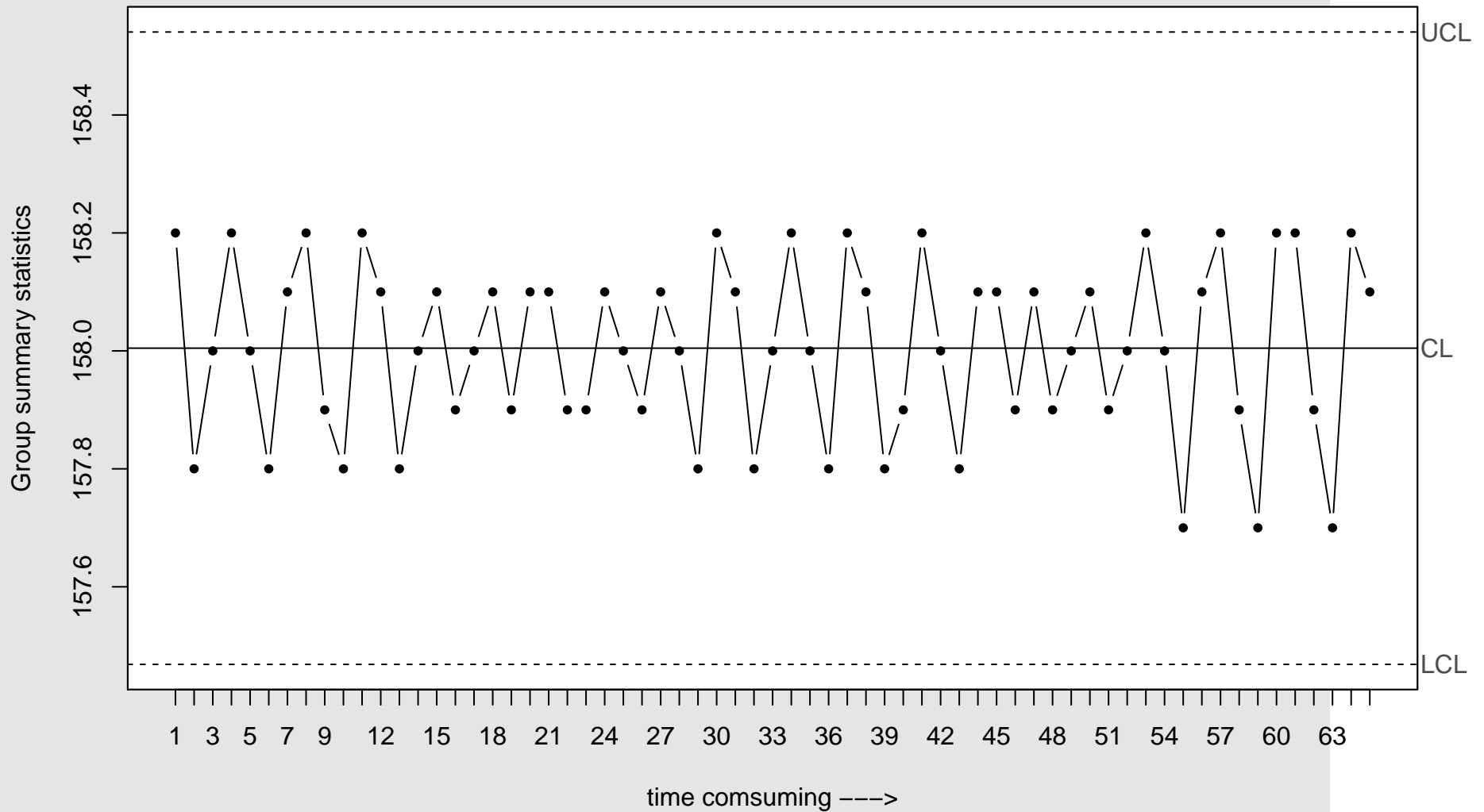


Number of groups = 65  
 Center = 157.9954  
 StdDev = 0.05263741

LCL = 157.8375  
 UCL = 158.1533

Number beyond limits = 0  
 Number violating runs = 13

### 11th column point of this product

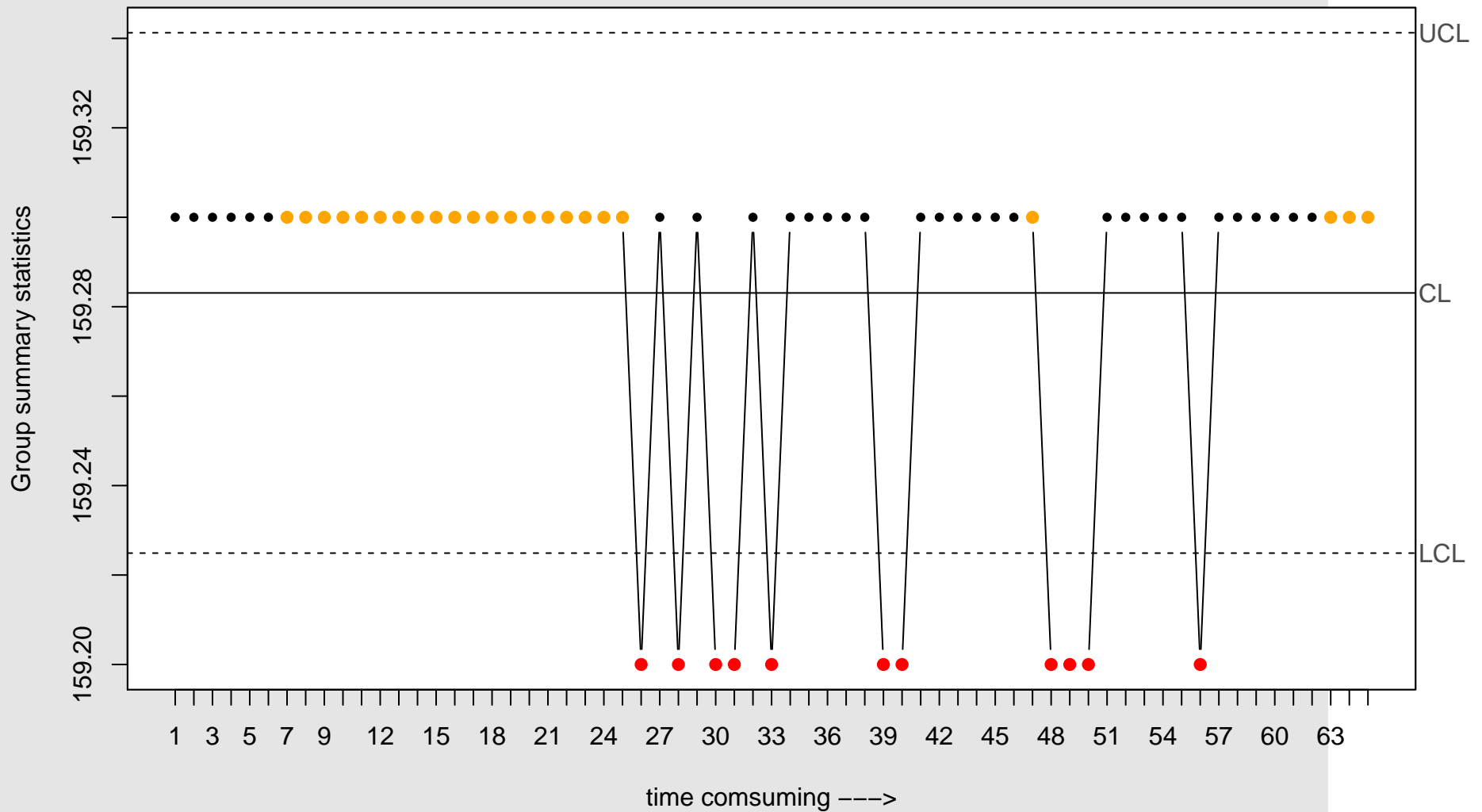


Number of groups = 65  
Center = 158.0046  
StdDev = 0.1786902

LCL = 157.4685  
UCL = 158.5407

Number beyond limits = 0  
Number violating runs = 0

### 12th column point of this product

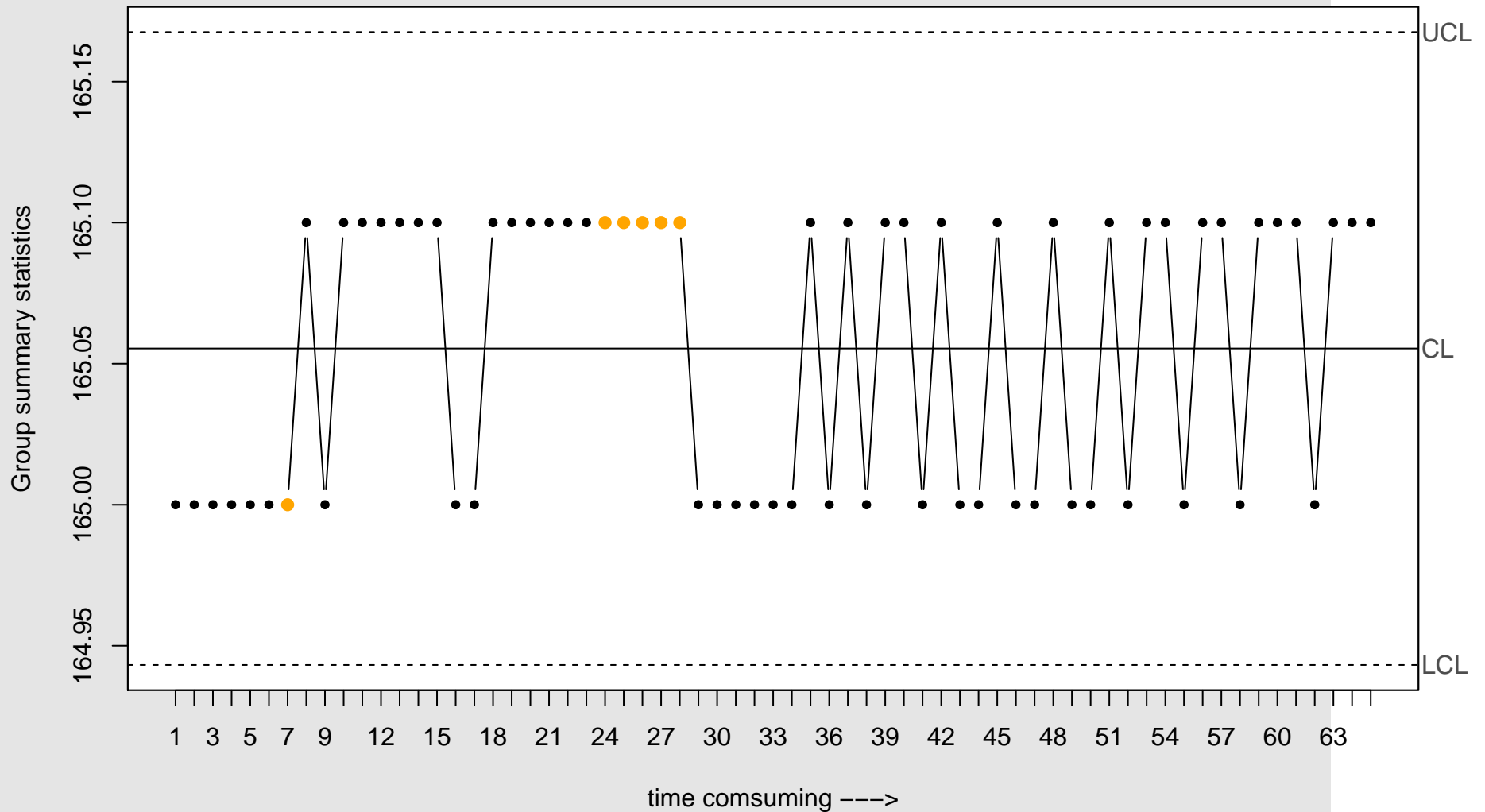


Number of groups = 65  
Center = 159.2831  
StdDev = 0.01939273

LCL = 159.2249  
UCL = 159.3413

Number beyond limits = 11  
Number violating runs = 23

### 13th column point of this product

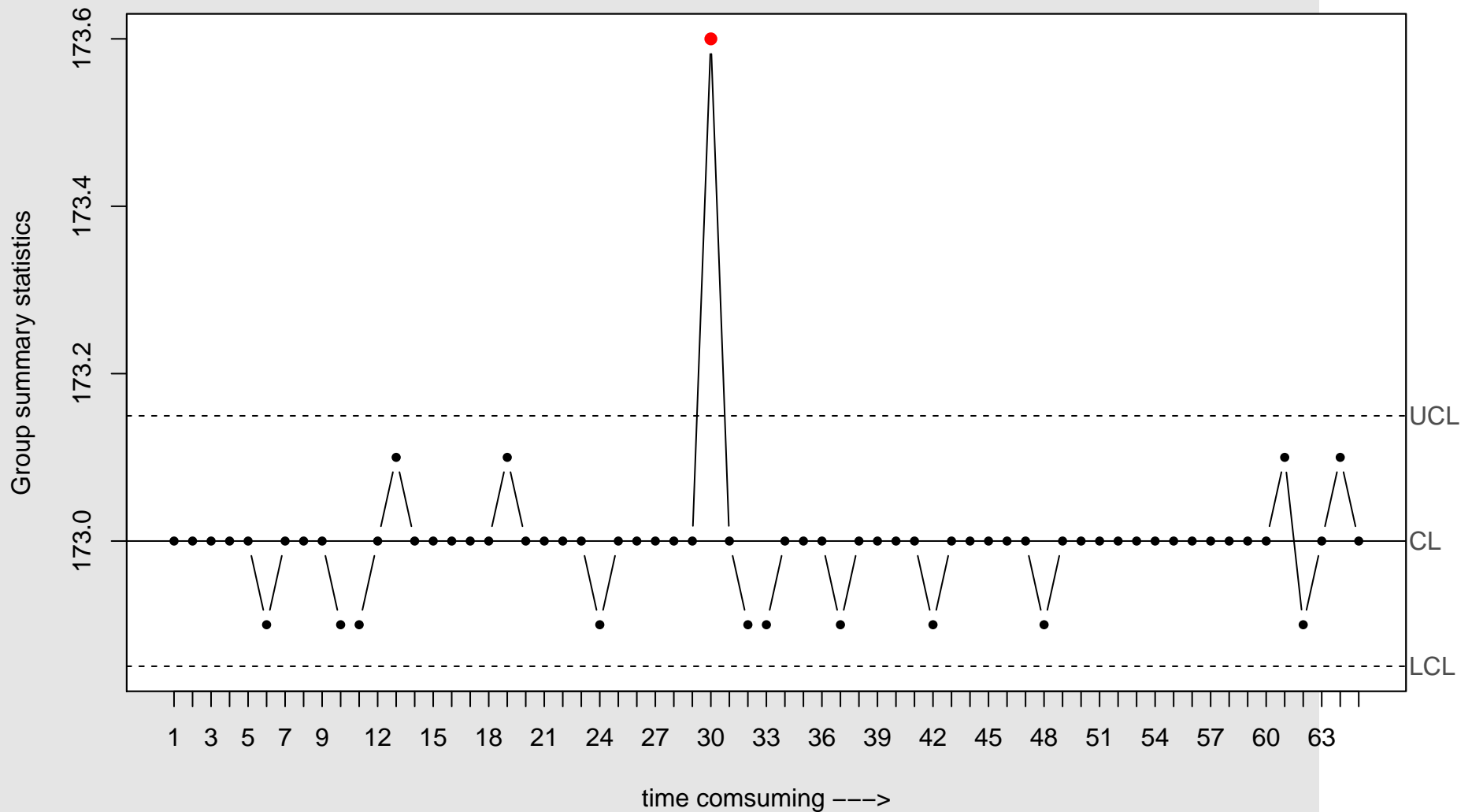


Number of groups = 65  
Center = 165.0554  
StdDev = 0.03740027

LCL = 164.9432  
UCL = 165.1676

Number beyond limits = 0  
Number violating runs = 6

# 14th column point of this product



Number of groups = 65

Center = 173

StdDev = 0.04986702

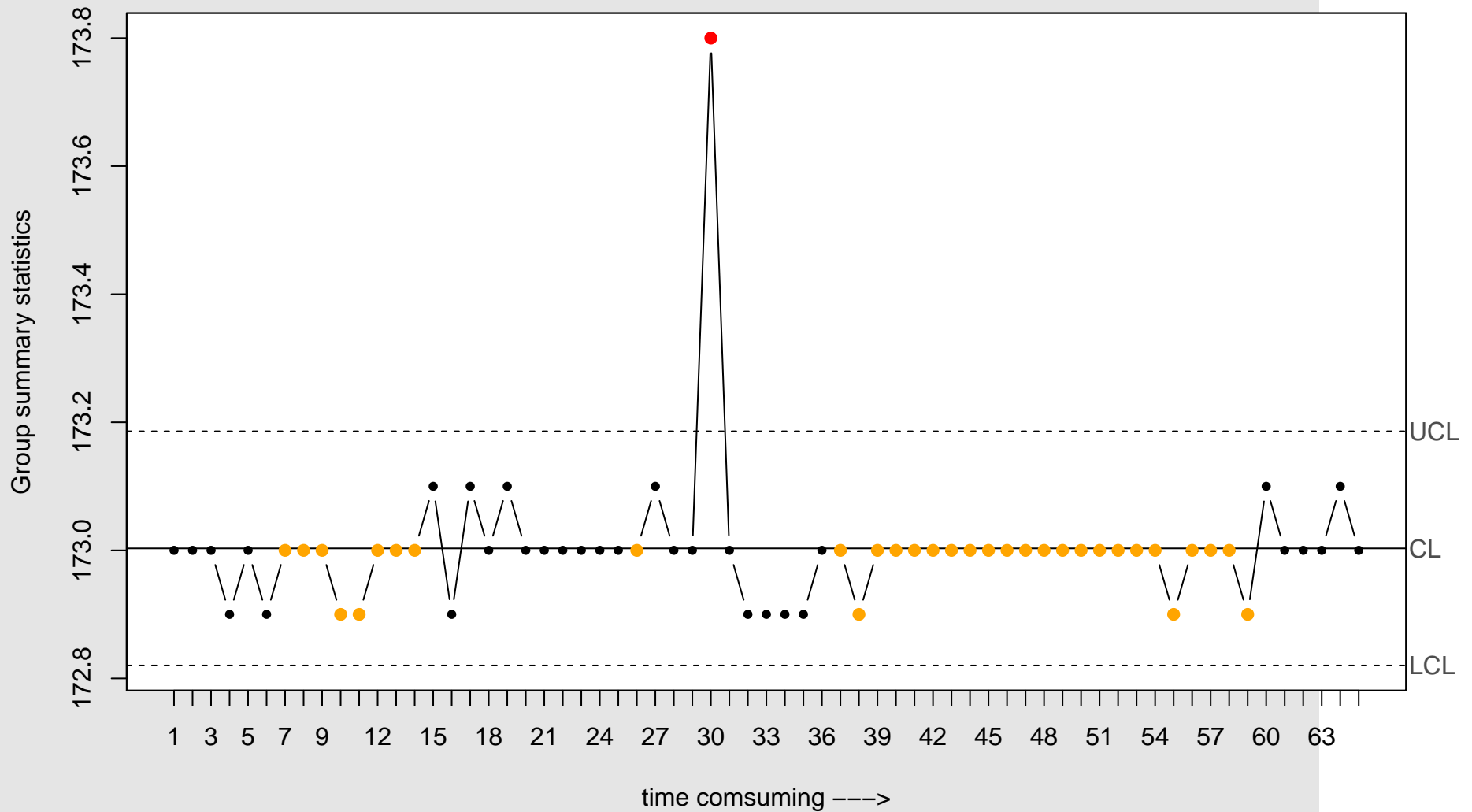
LCL = 172.8504

UCL = 173.1496

Number beyond limits = 1

Number violating runs = 0

# 15th column point of this product

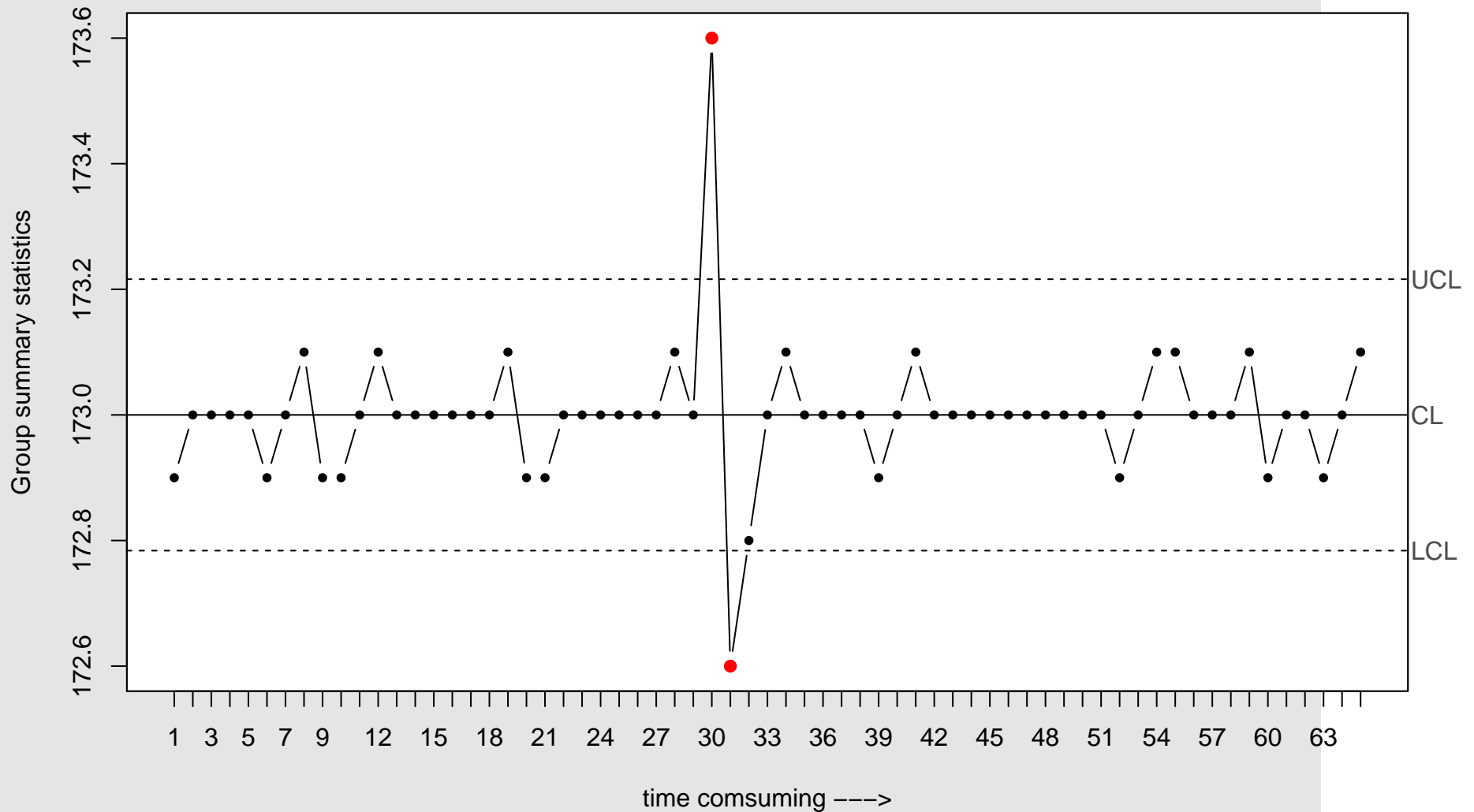


Number of groups = 65  
Center = 173.0031  
StdDev = 0.06094858

LCL = 172.8202  
UCL = 173.1859

Number beyond limits = 1  
Number violating runs = 32

# 16th column point of this product

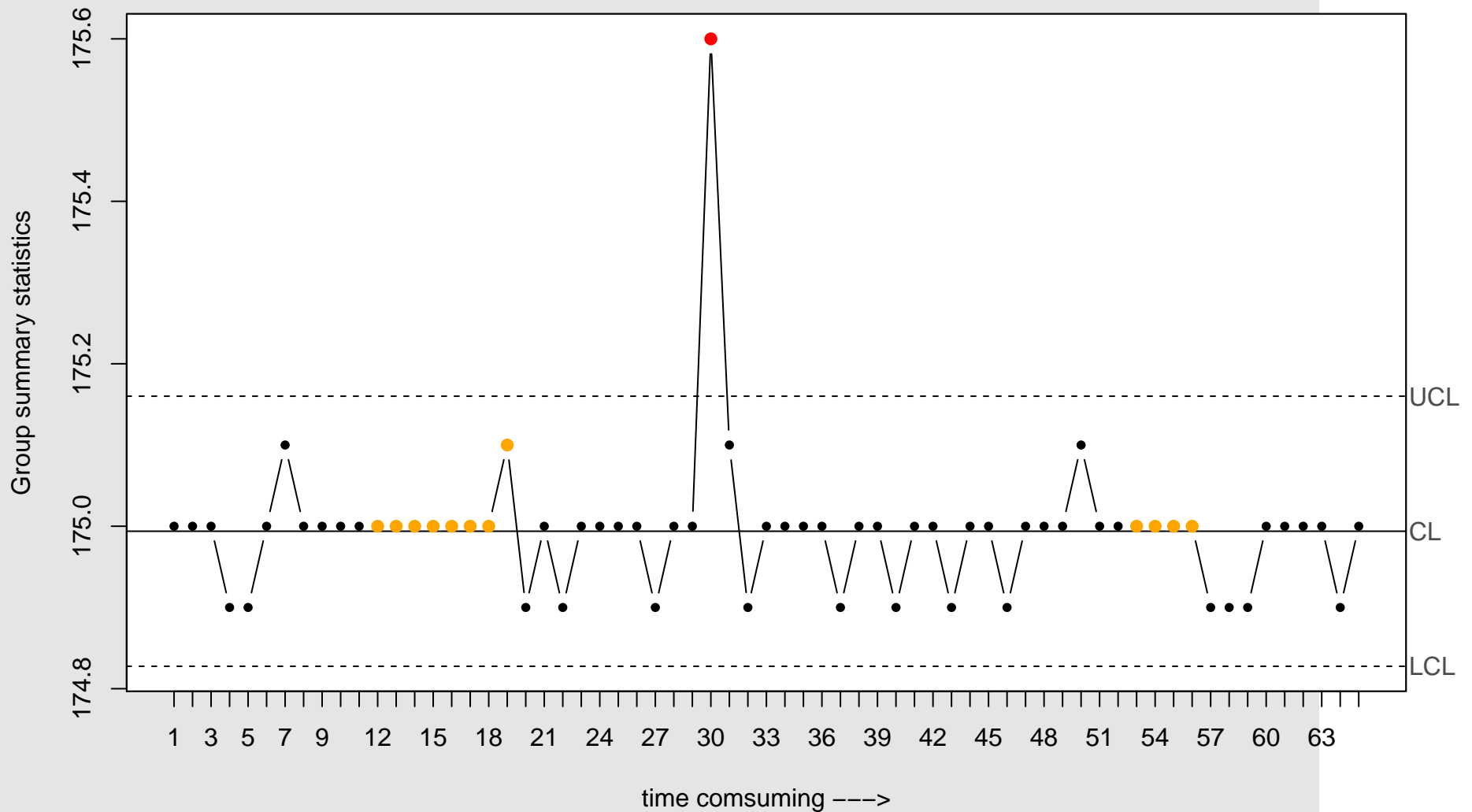


Number of groups = 65  
Center = 173  
StdDev = 0.07203014

LCL = 172.7839  
UCL = 173.2161

Number beyond limits = 2  
Number violating runs = 0

### 17th column point of this product



Number of groups = 65

Center = 174.9938

StdDev = 0.0554078

LCL = 174.8276

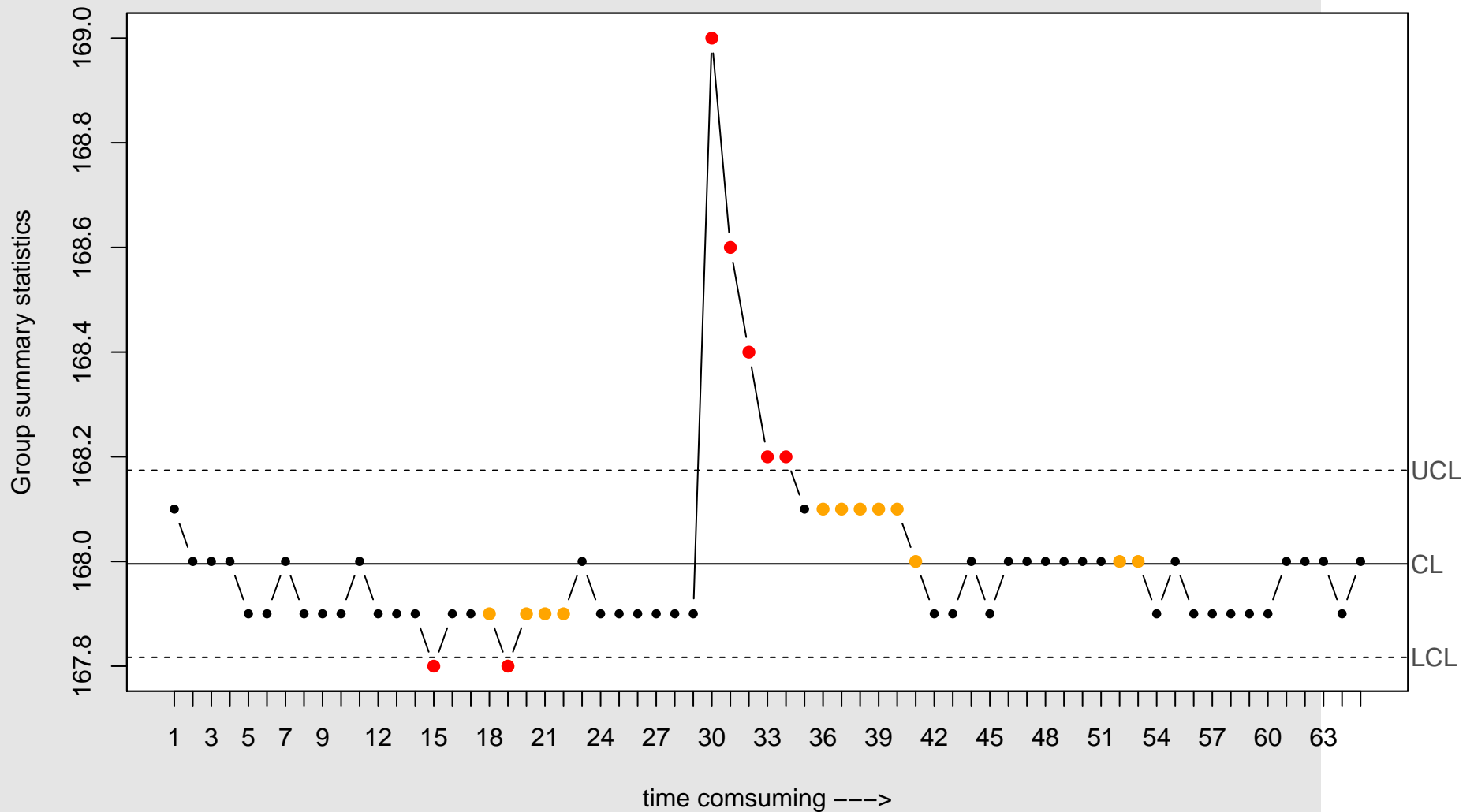
UCL = 175.1601

Number beyond limits = 1

Number violating runs = 12



# 18th column point of this product

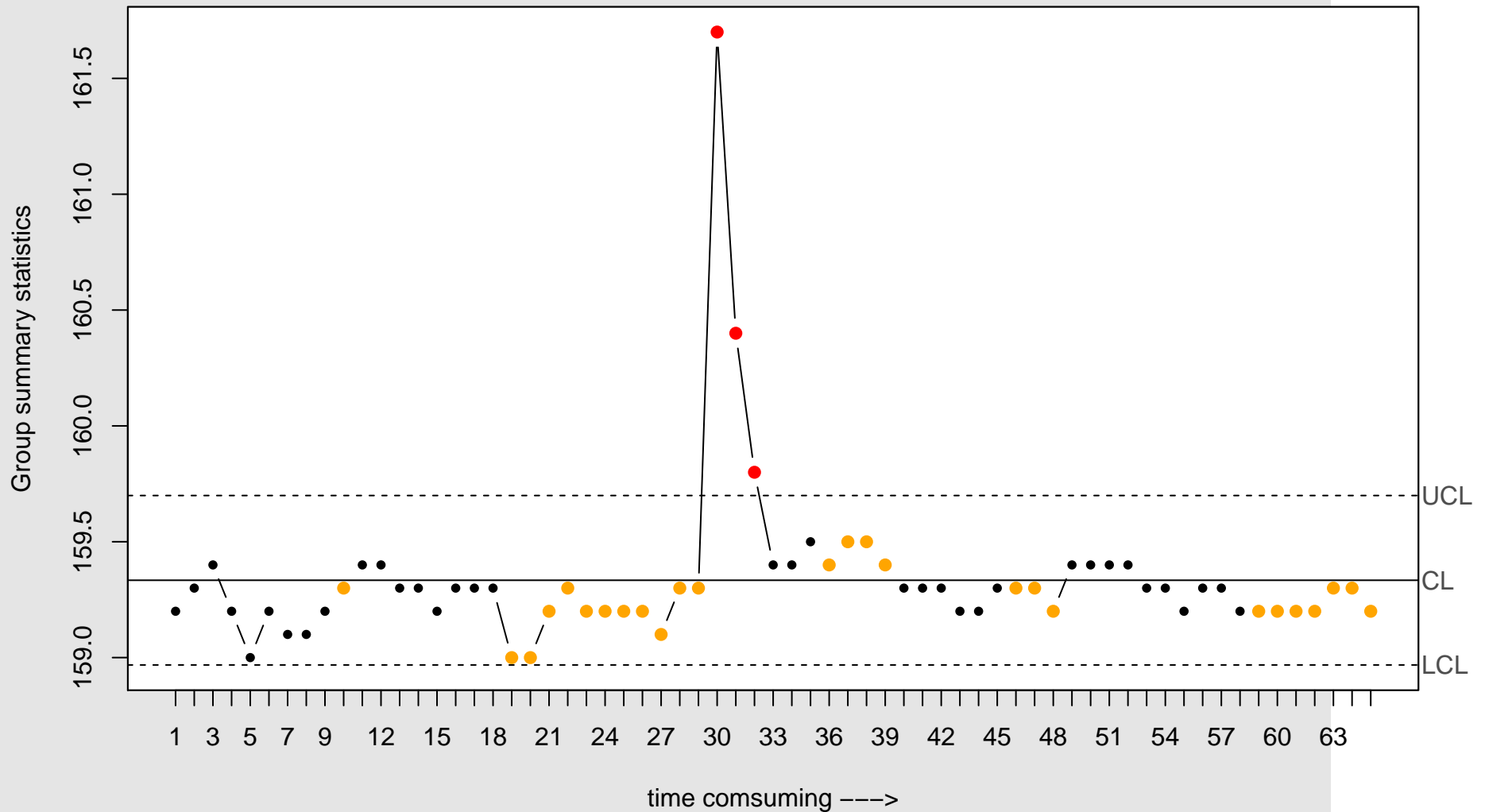


Number of groups = 65  
Center = 167.9954  
StdDev = 0.05956339

LCL = 167.8167  
UCL = 168.1741

Number beyond limits = 7  
Number violating runs = 13

### 19th column point of this product

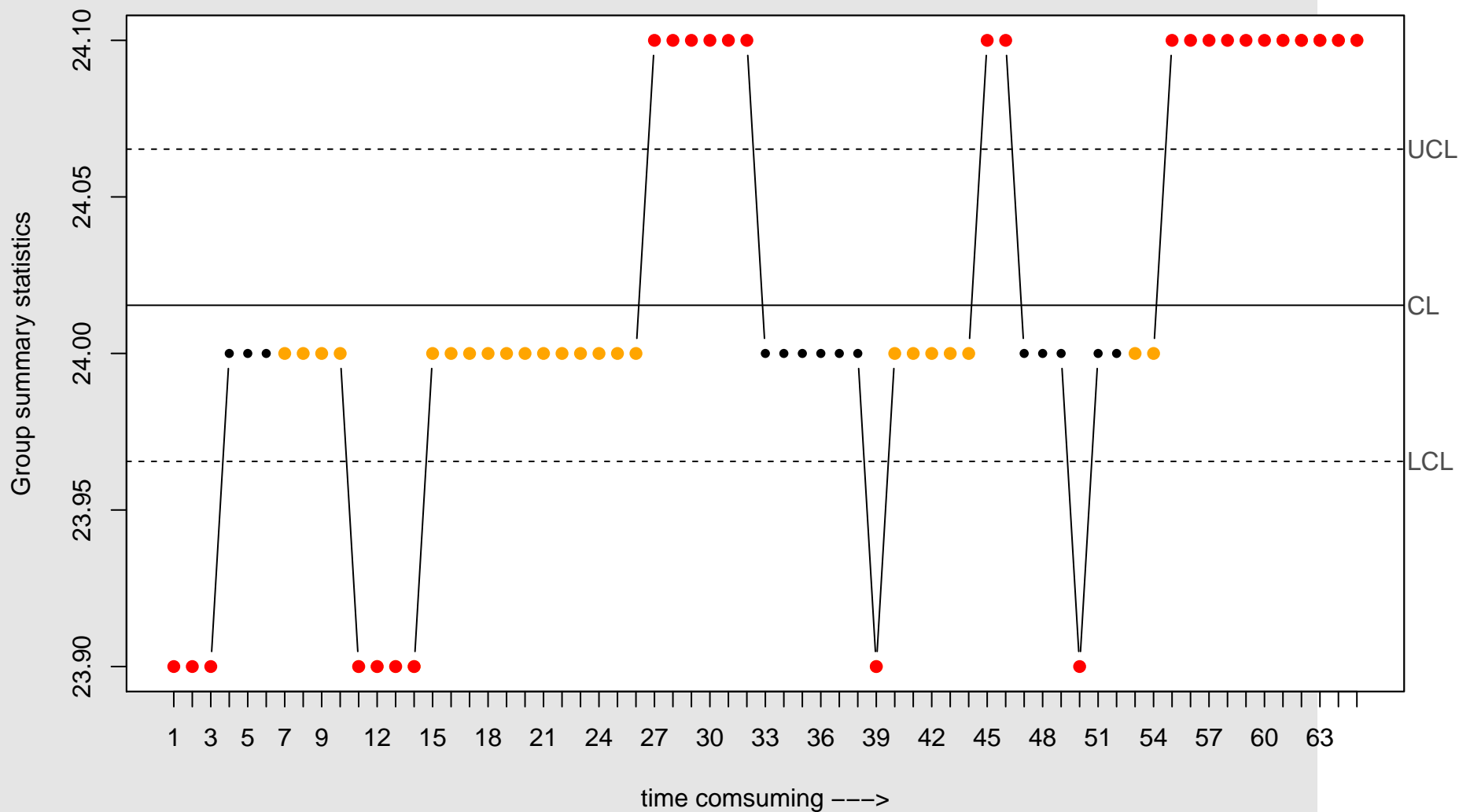


Number of groups = 65  
Center = 159.3338  
StdDev = 0.1218972

LCL = 158.9682  
UCL = 159.6995

Number beyond limits = 3  
Number violating runs = 26

## 20th column point of this product

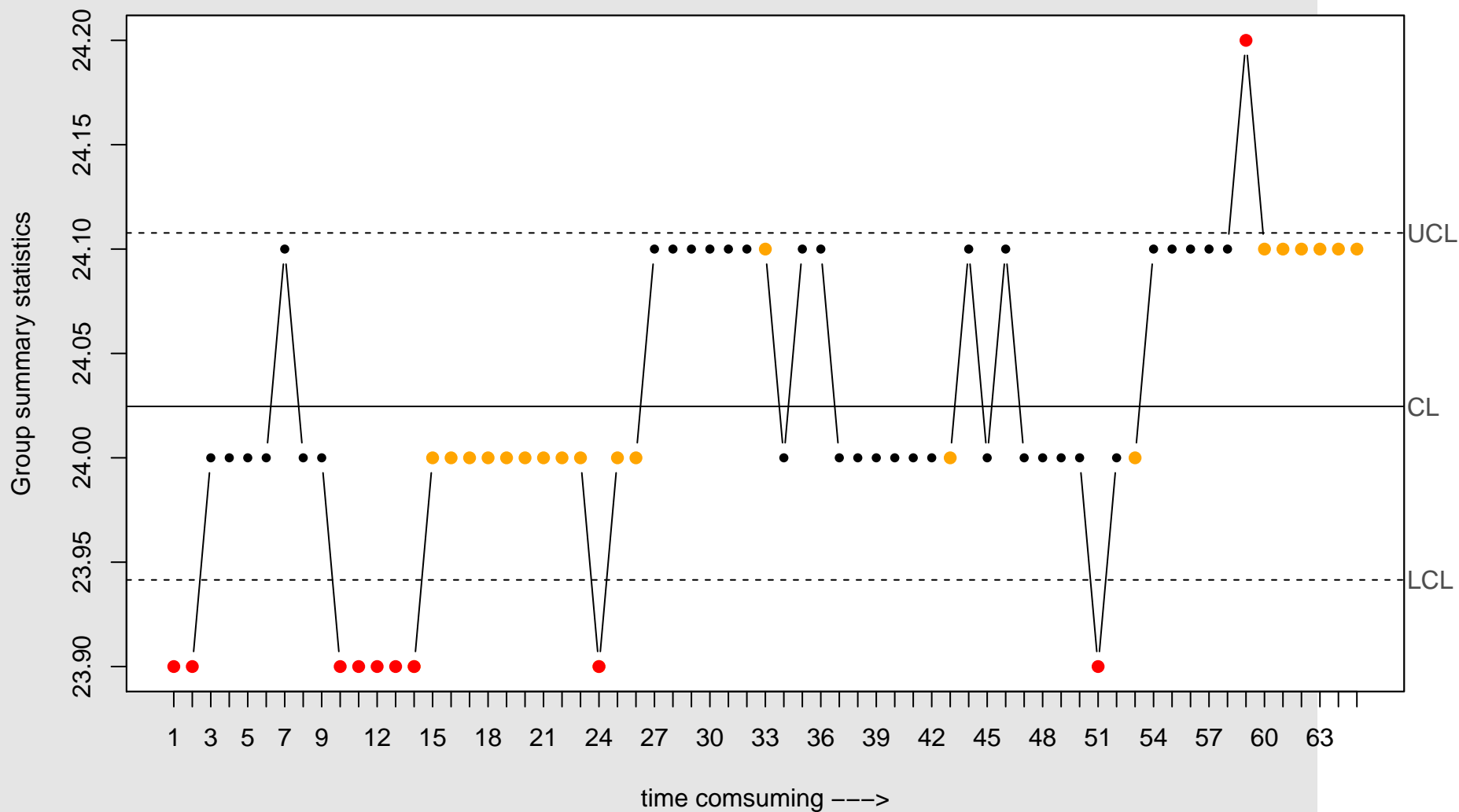


Number of groups = 65  
 Center = 24.01538  
 StdDev = 0.01662234

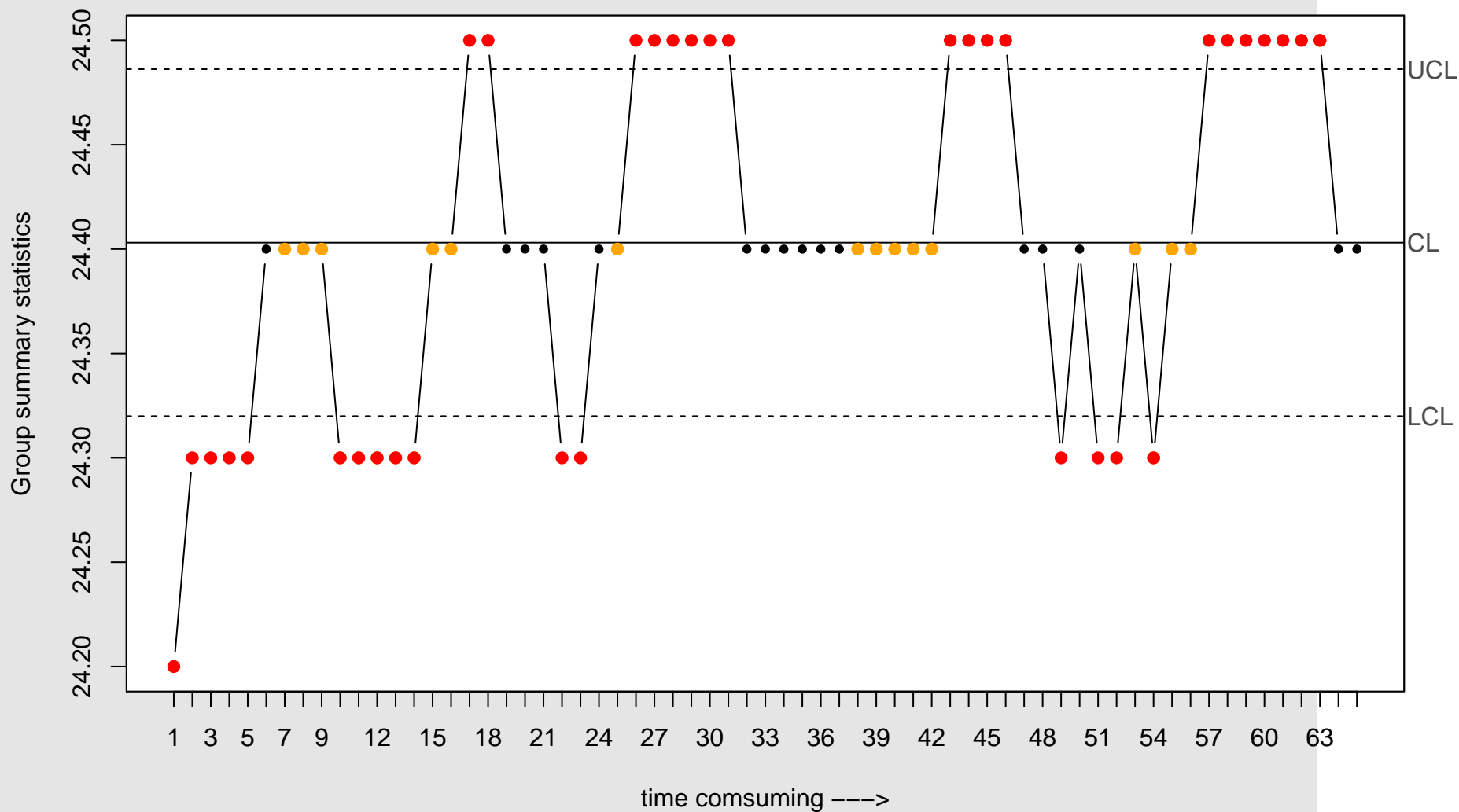
LCL = 23.96552  
 UCL = 24.06525

Number beyond limits = 28  
 Number violating runs = 33

## 21th column point of this product



## 22th column point of this product



Number of groups = 65  
 Center = 24.40308  
 StdDev = 0.0277039

LCL = 24.31997  
 UCL = 24.48619

Number beyond limits = 35  
 Number violating runs = 21