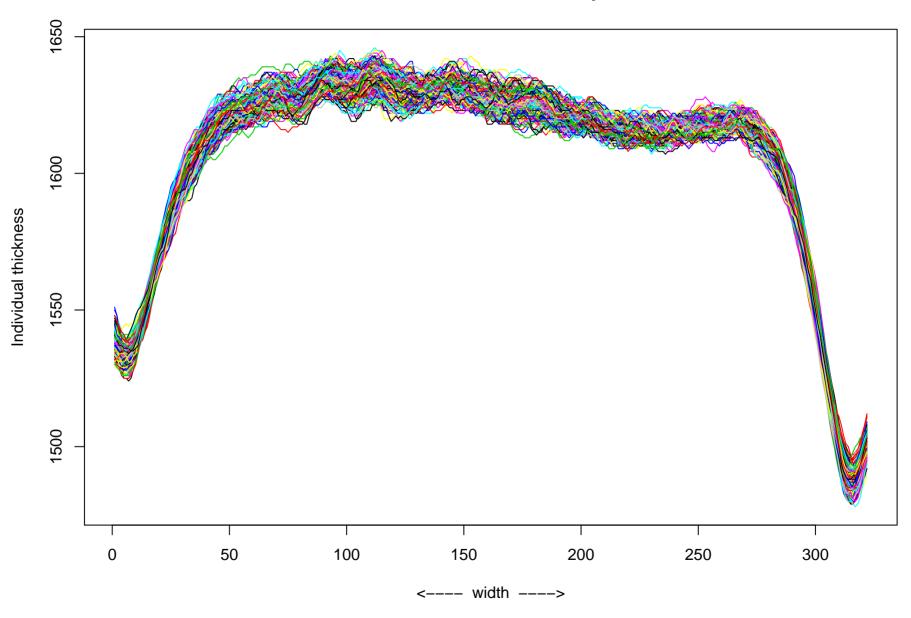
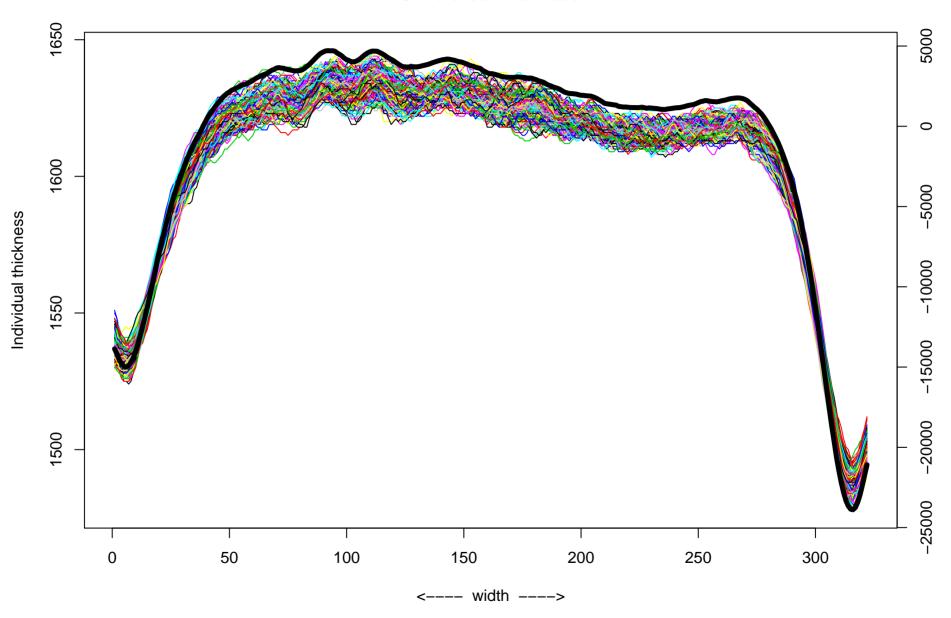
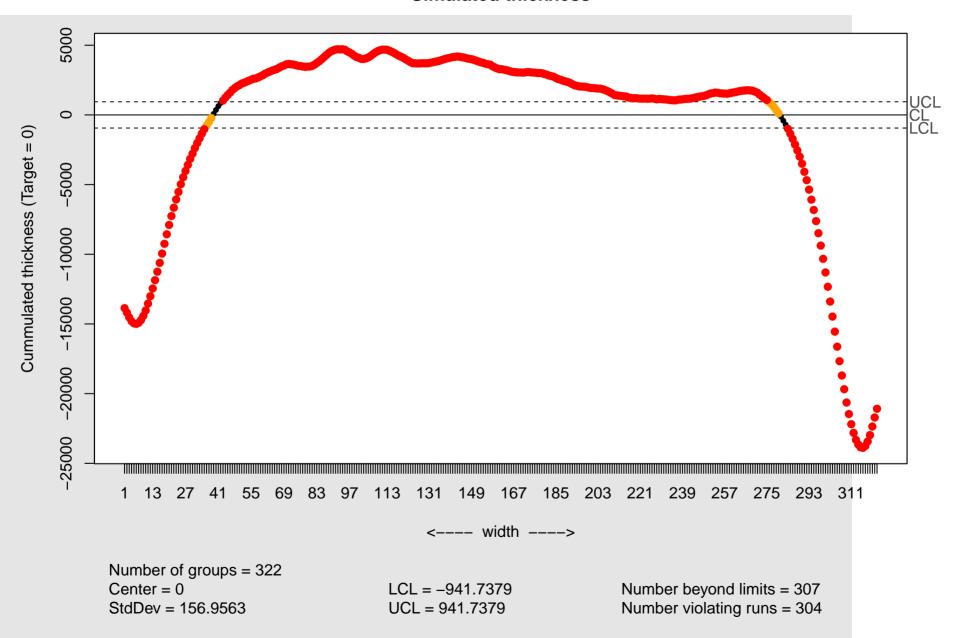
# Individual thickness only



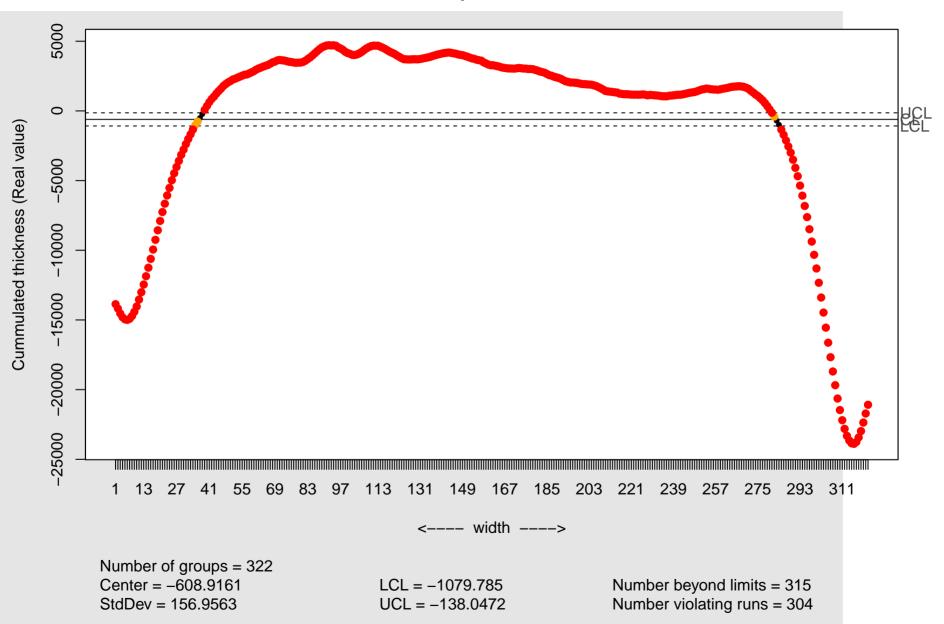
## Simulated thickness



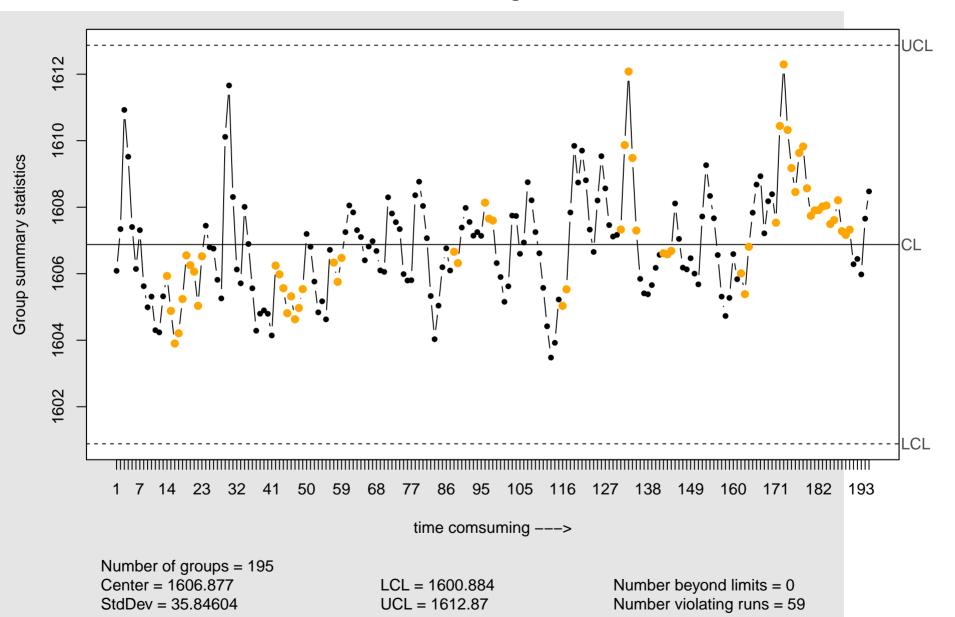
#### Simulated thickness



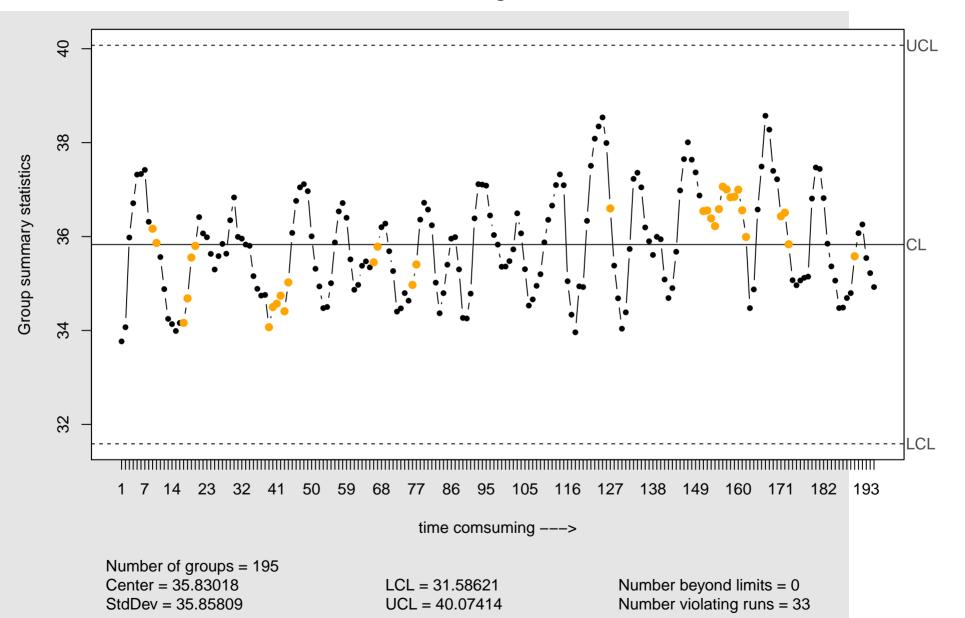
## Simulated thickness: Cpk is -0.02758 and z is -1.583.



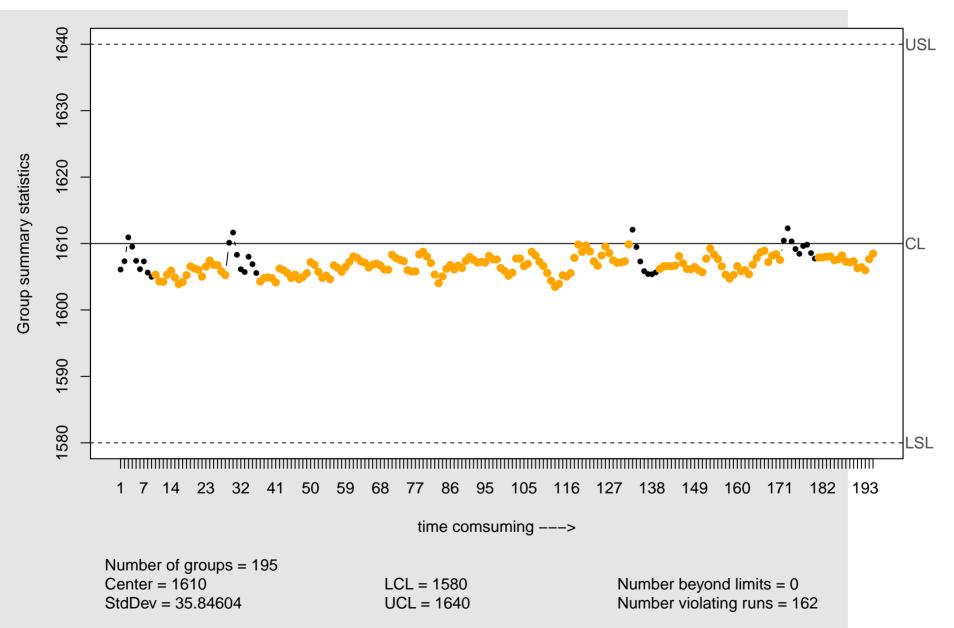
## X-bar chart for a given dataset

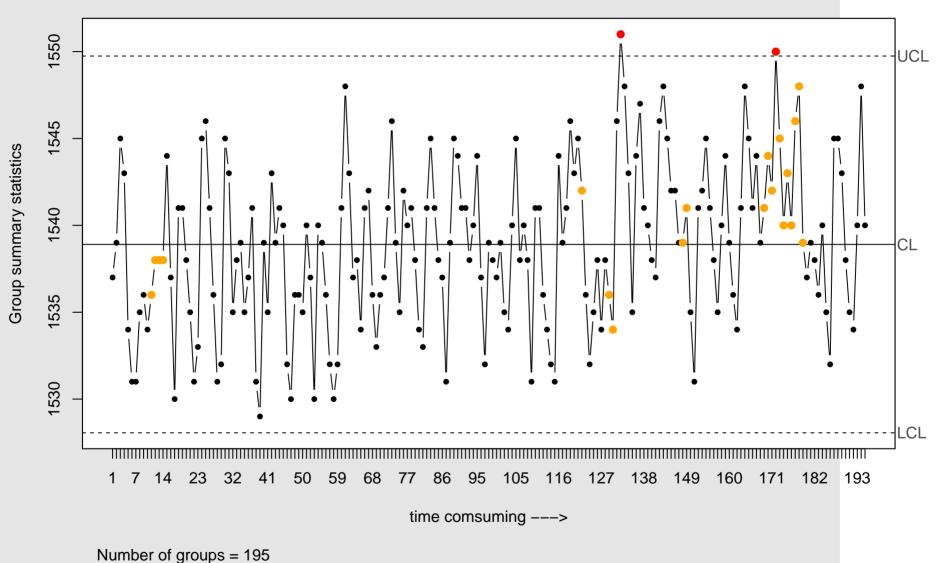


## S chart for a given dataset



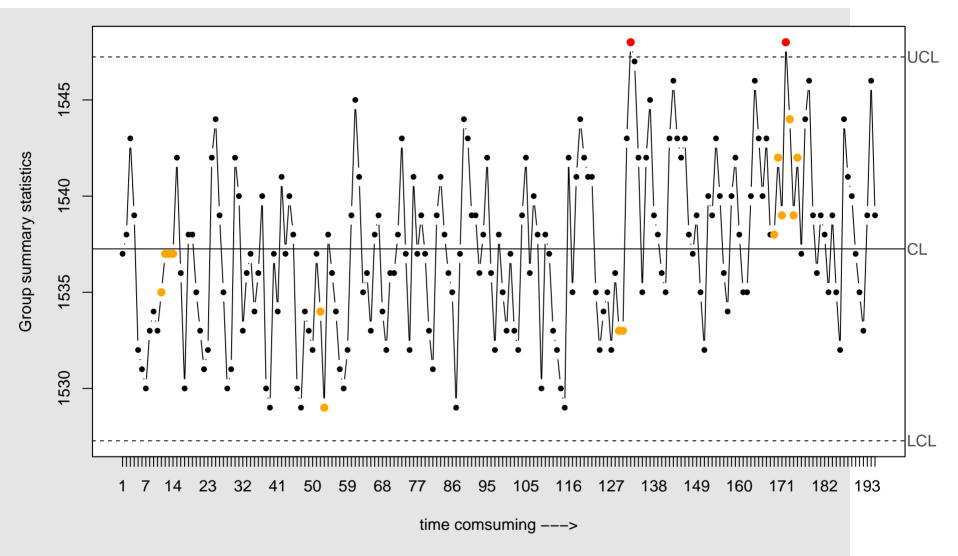
## X-bar chart using USL/LSL for a given dataset





Number of groups = 195 Center = 1538.903 StdDev = 3.614645

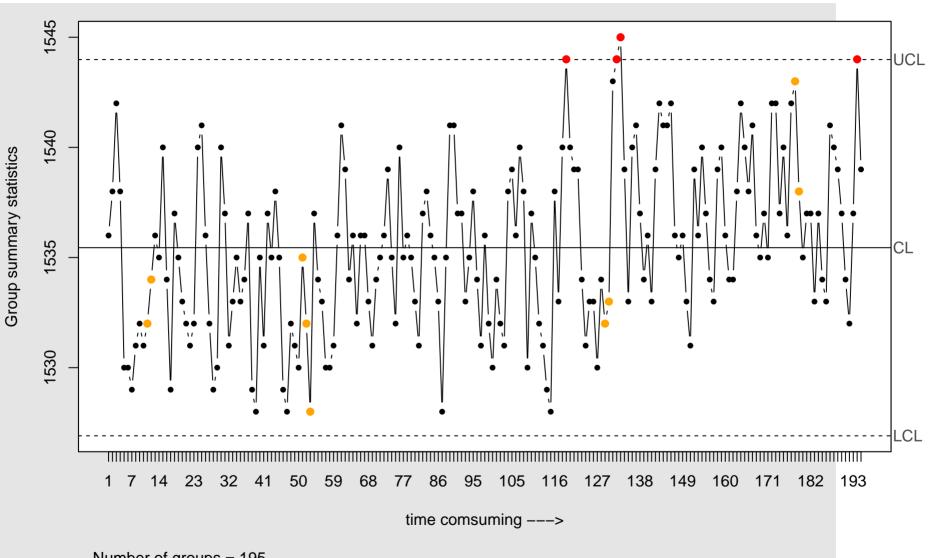
LCL = 1528.059 UCL = 1549.746 Number beyond limits = 2 Number violating runs = 20



Number of groups = 195 Center = 1537.256 StdDev = 3.326753

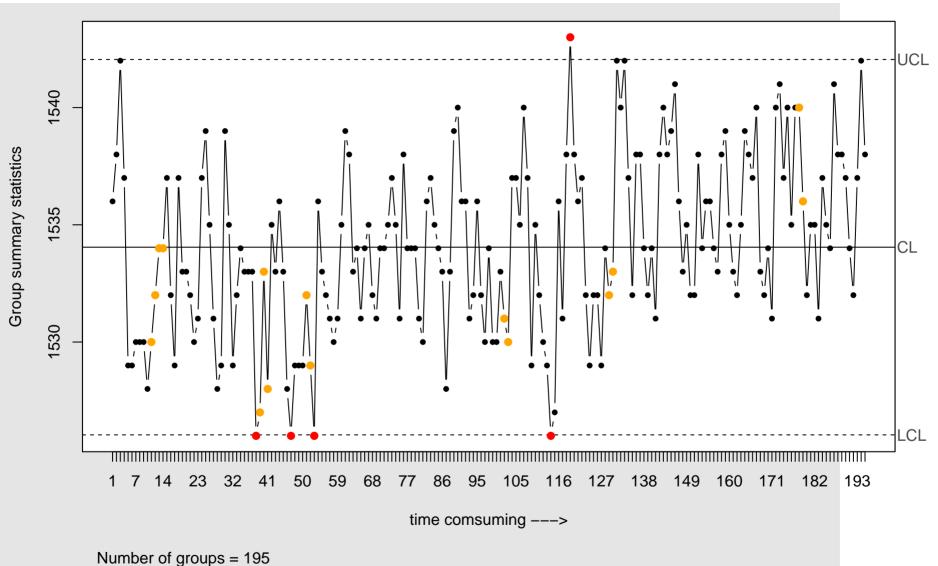
LCL = 1527.276 UCL = 1547.237

Number beyond limits = 2 Number violating runs = 15



Number of groups = 195 Center = 1535.446 StdDev = 2.846933

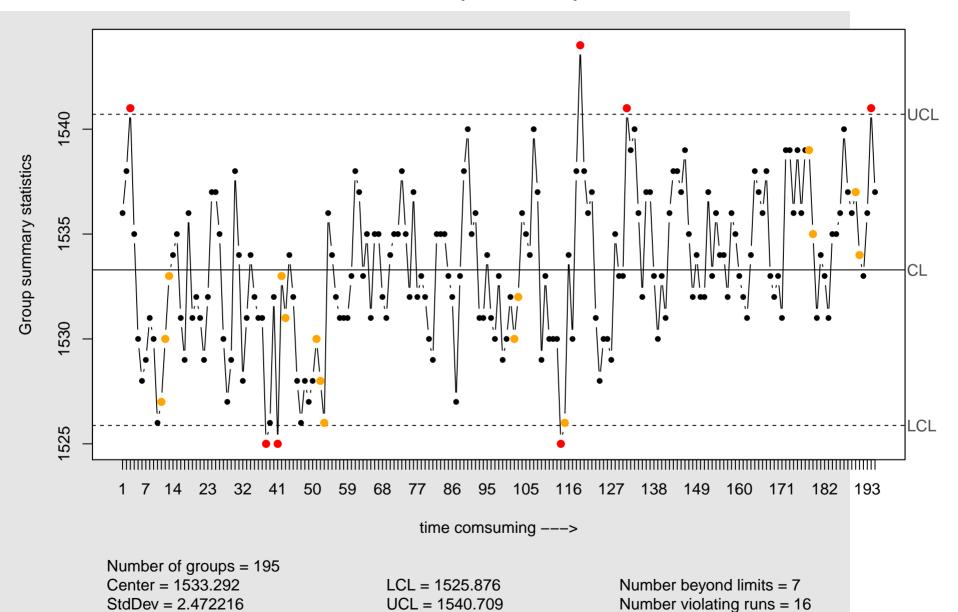
LCL = 1526.905 UCL = 1543.987 Number beyond limits = 4 Number violating runs = 9

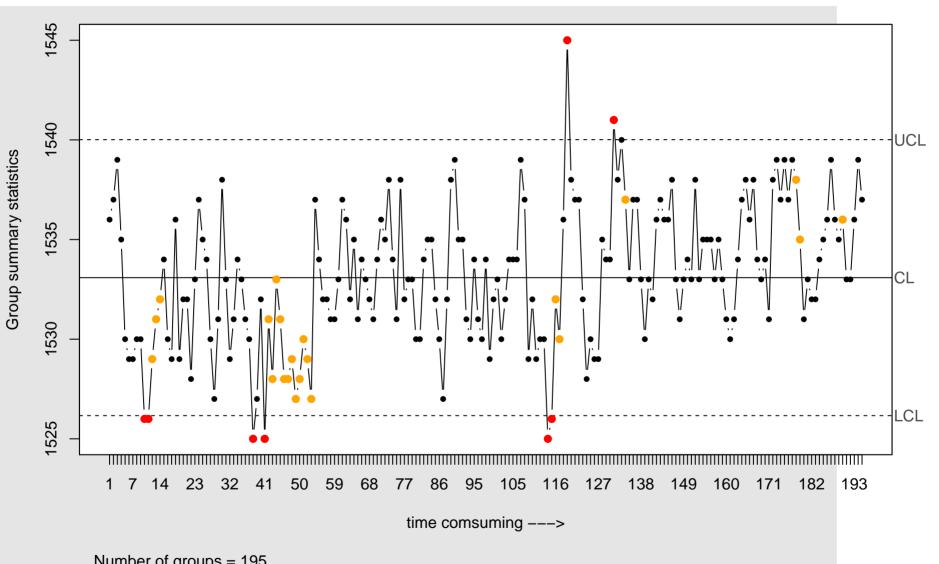


Number of groups = 195 Center = 1534.046 StdDev = 2.668714

LCL = 1526.04 UCL = 1542.052

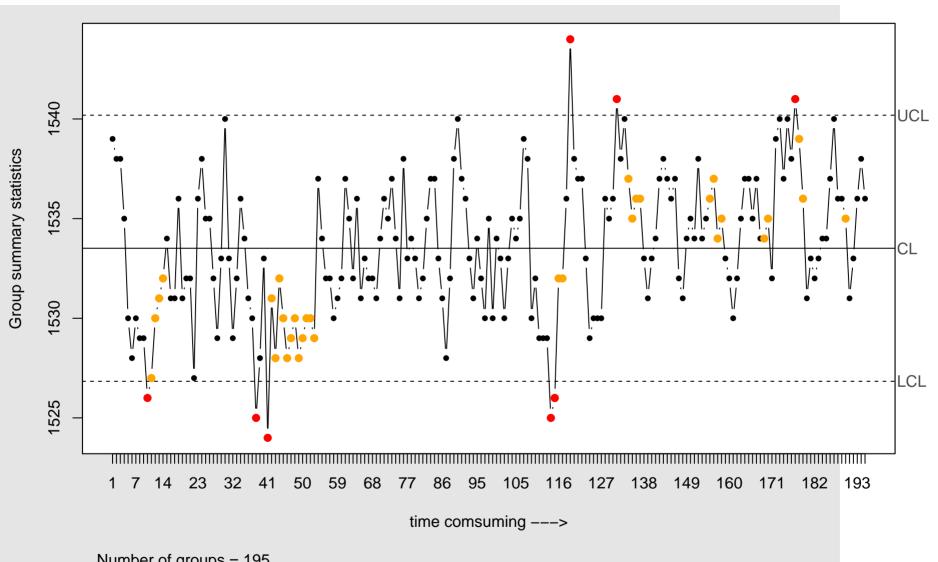
Number beyond limits = 5 Number violating runs = 17





Number of groups = 195 Center = 1533.087 StdDev = 2.307706

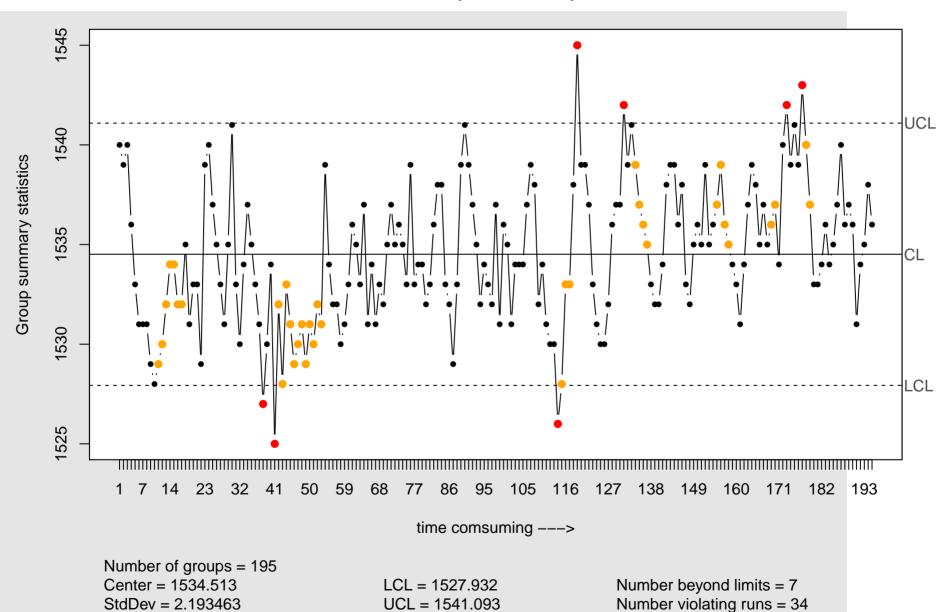
LCL = 1526.164 UCL = 1540.01 Number beyond limits = 8 Number violating runs = 24

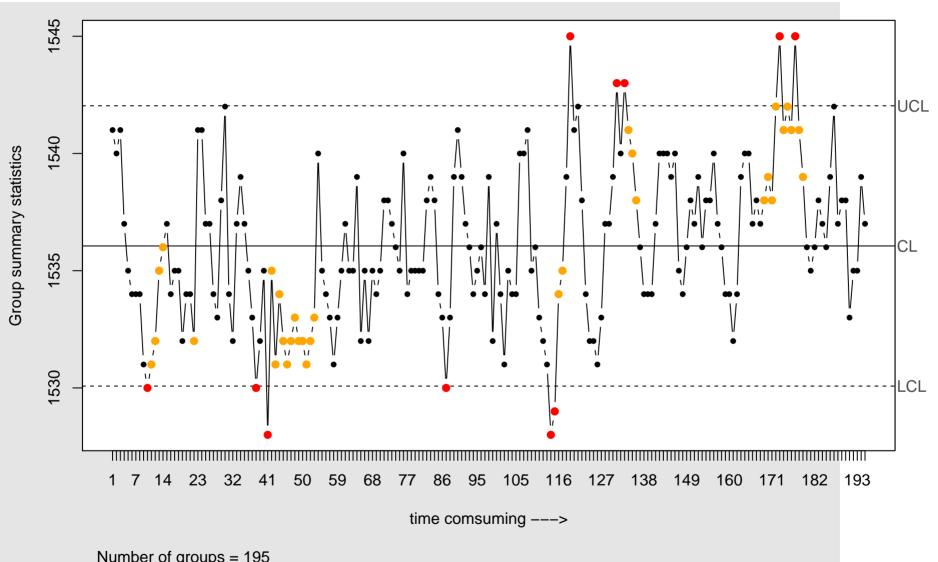


Number of groups = 195 Center = 1533.513

StdDev = 2.225451

LCL = 1526.836 UCL = 1540.189 Number beyond limits = 8 Number violating runs = 32

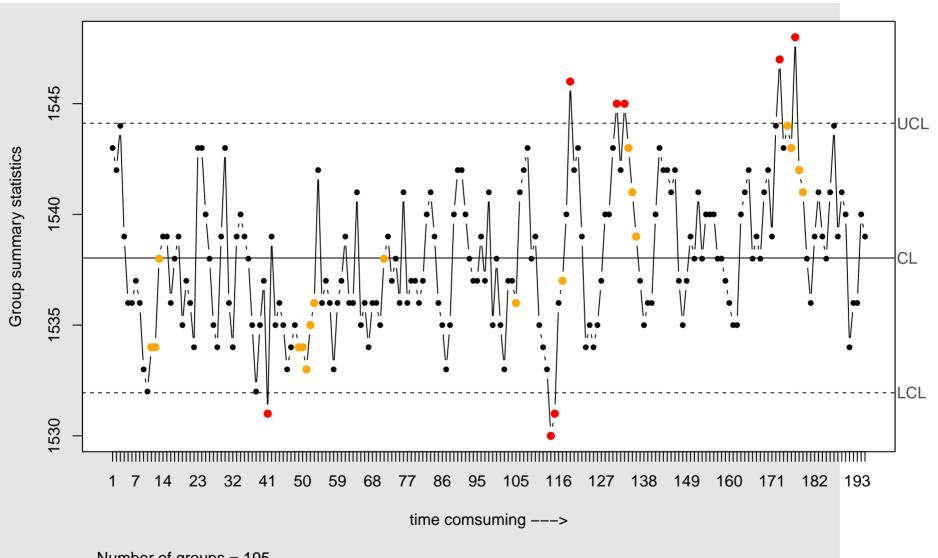




Number of groups = 195 Center = 1536.056 StdDev = 1.992396

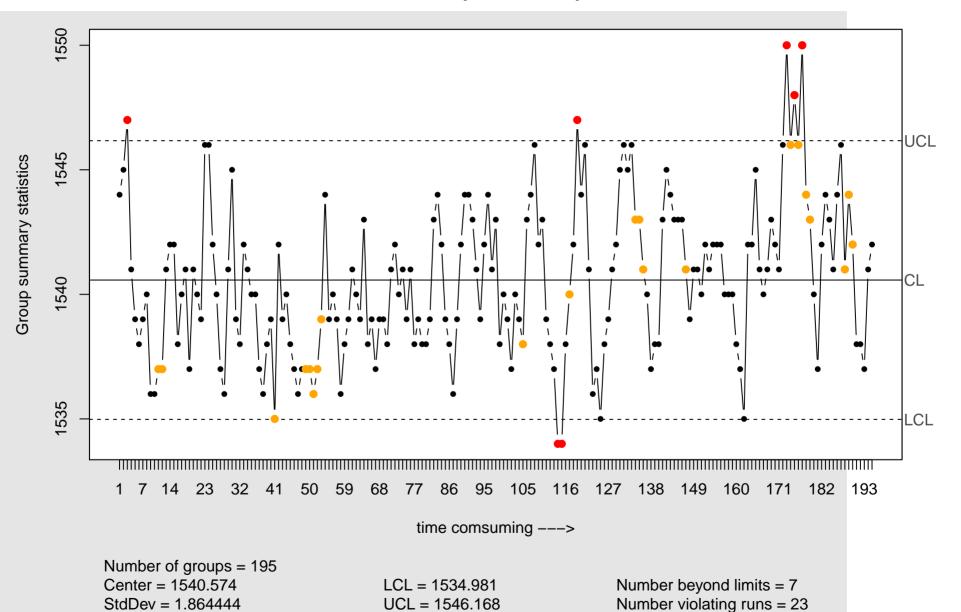
LCL = 1530.079 UCL = 1542.034

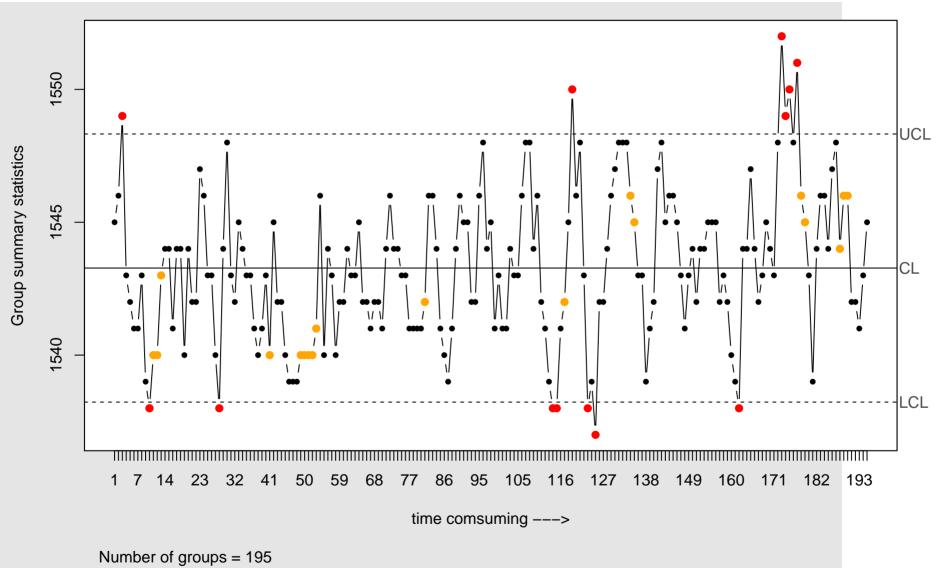
Number beyond limits = 11 Number violating runs = 34



Number of groups = 195 Center = 1538.031 StdDev = 2.028954

LCL = 1531.944 UCL = 1544.118 Number beyond limits = 8 Number violating runs = 19

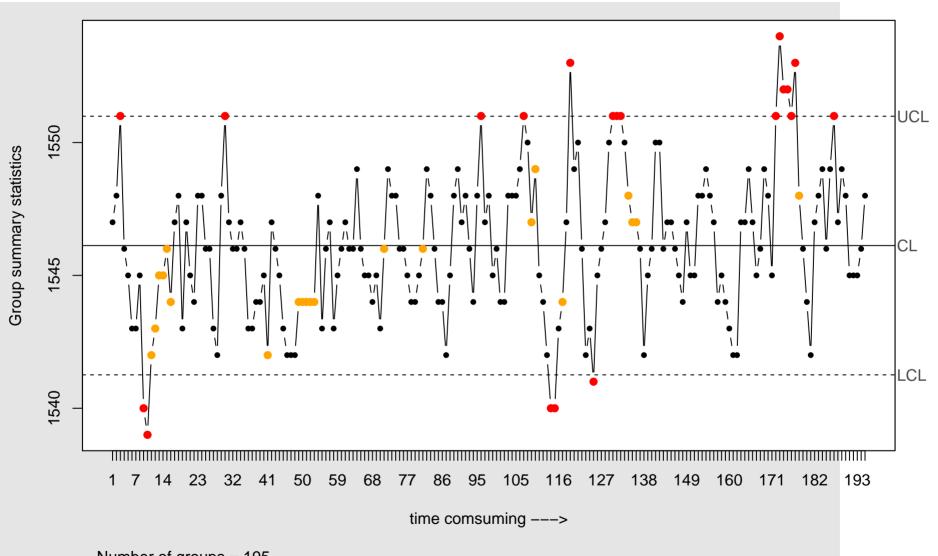




Number of groups = 195 Center = 1543.277 StdDev = 1.681655

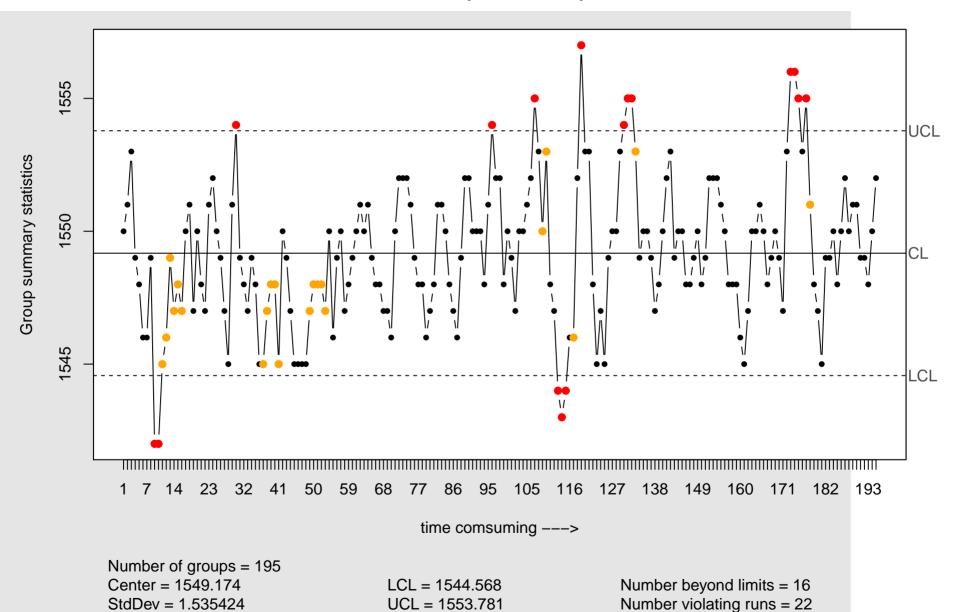
LCL = 1538.232 UCL = 1548.322

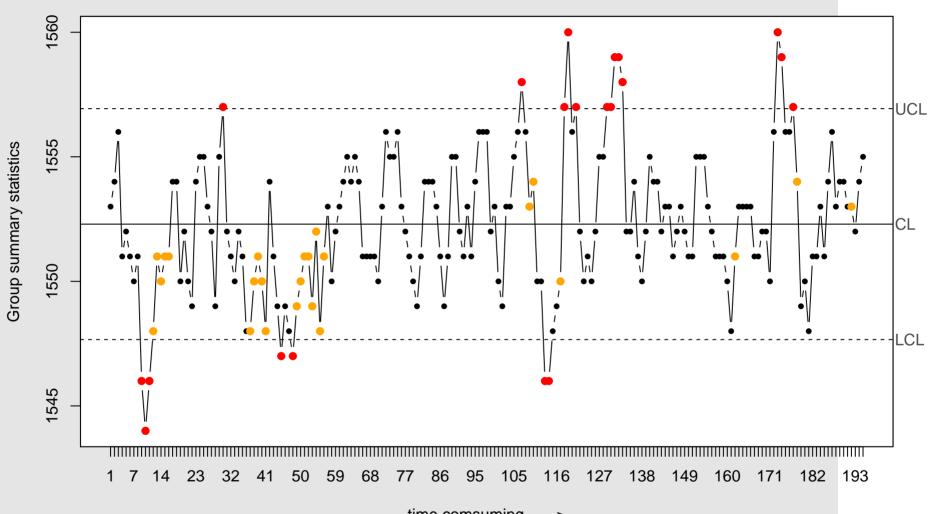
Number beyond limits = 13 Number violating runs = 19



Number of groups = 195 Center = 1546.123 StdDev = 1.622249

LCL = 1541.256 UCL = 1550.99 Number beyond limits = 20 Number violating runs = 22



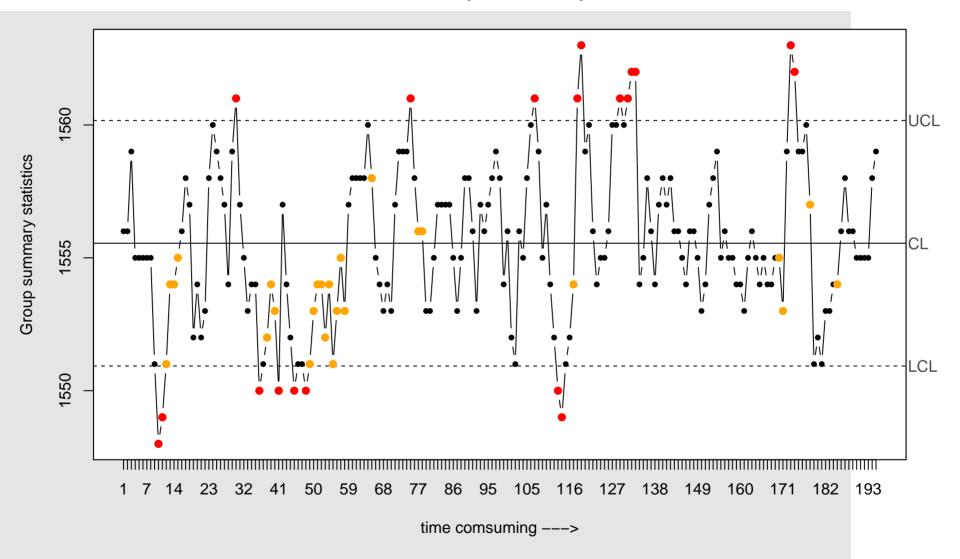


time comsuming --->

Number of groups = 195 Center = 1552.297 StdDev = 1.544564

LCL = 1547.664 UCL = 1556.931

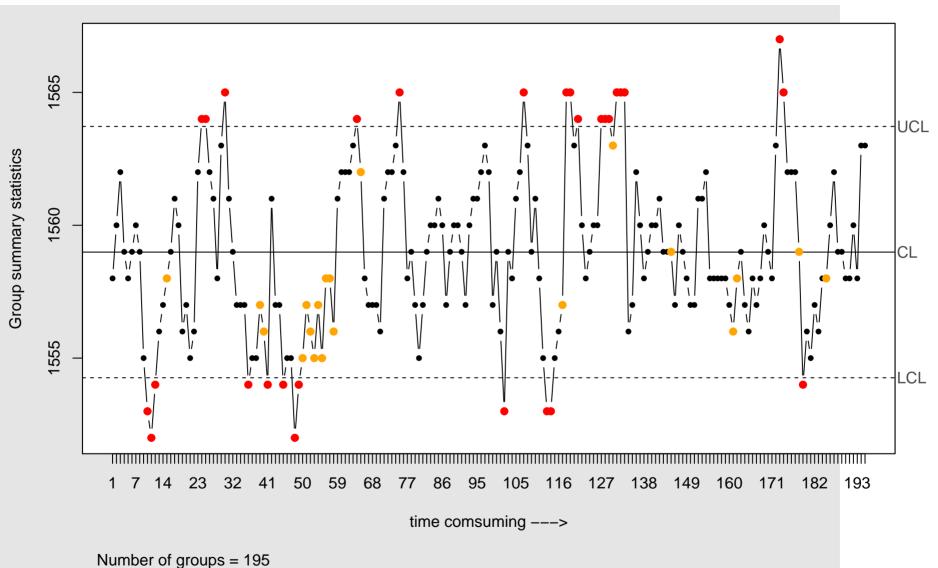
Number beyond limits = 20 Number violating runs = 27



Number of groups = 195 Center = 1555.549 StdDev = 1.539994

LCL = 1550.929 UCL = 1560.169

Number beyond limits = 19 Number violating runs = 30

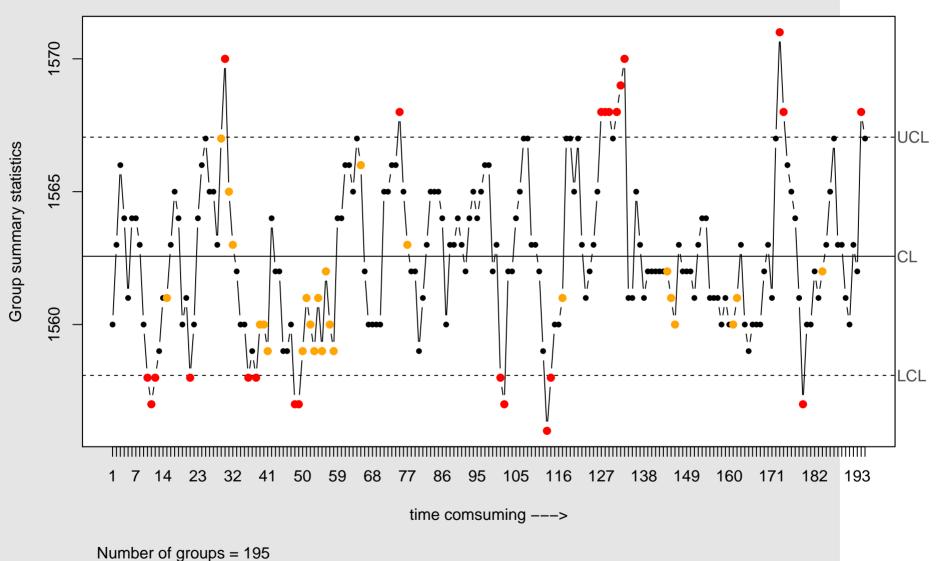


Number of groups = 195 Center = 1558.99

StdDev = 1.576552

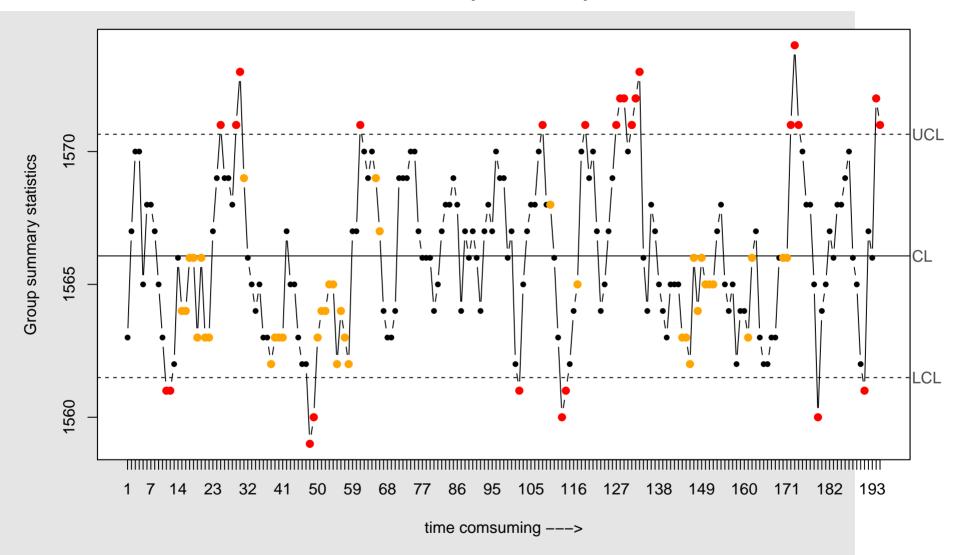
LCL = 1554.26 UCL = 1563.719

Number beyond limits = 29 Number violating runs = 25



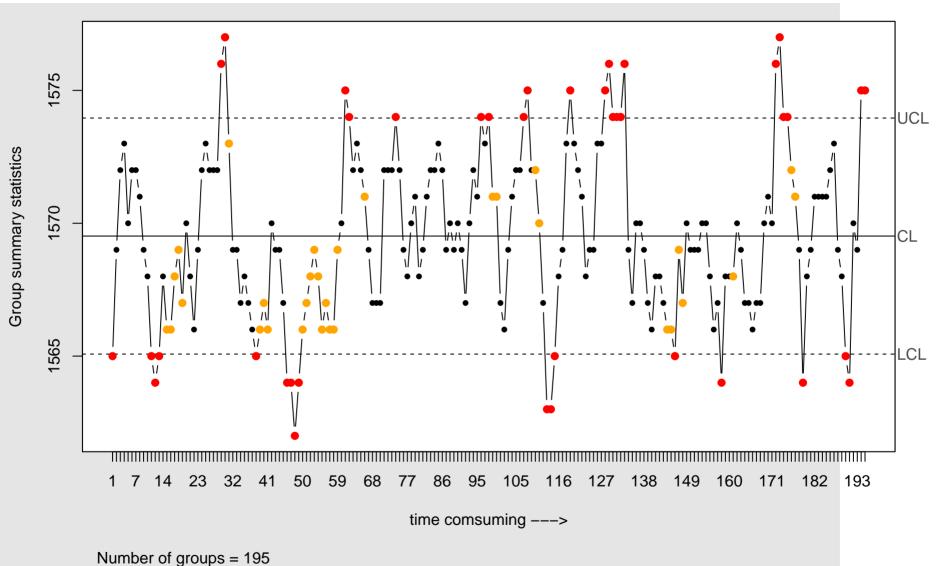
Number of groups = 195 Center = 1562.569 StdDev = 1.494297

LCL = 1558.086 UCL = 1567.052 Number beyond limits = 24 Number violating runs = 30



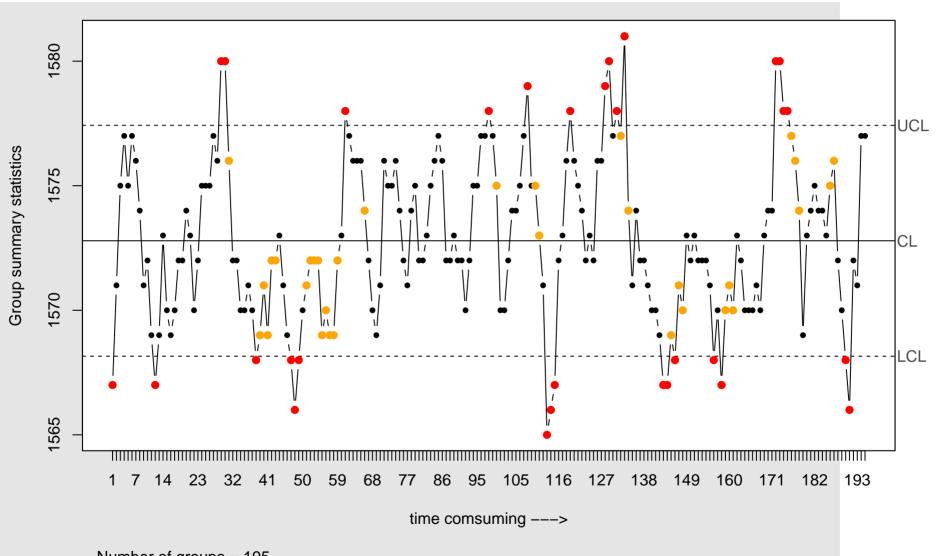
Number of groups = 195 Center = 1566.072 StdDev = 1.526285

LCL = 1561.493 UCL = 1570.651 Number beyond limits = 26 Number violating runs = 45



Number of groups = 195 Center = 1569.518 StdDev = 1.480588

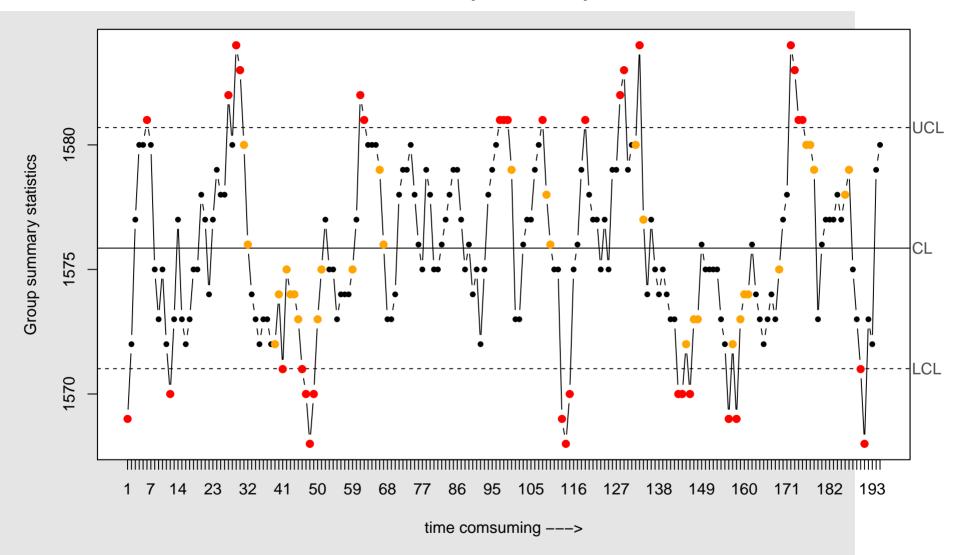
LCL = 1565.076 UCL = 1573.96 Number beyond limits = 39 Number violating runs = 38



Number of groups = 195 Center = 1572.79 StdDev = 1.544564

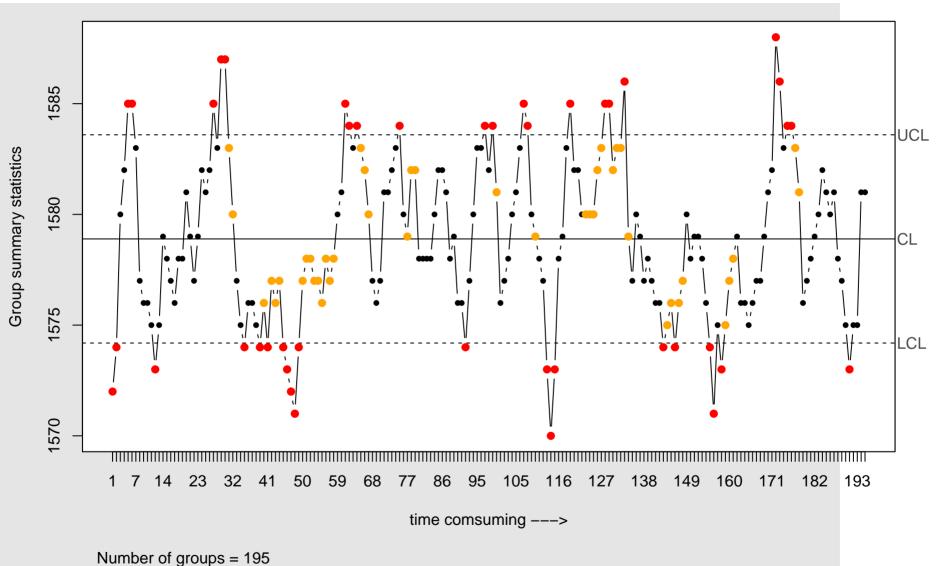
LCL = 1568.156 UCL = 1577.423

Number beyond limits = 30 Number violating runs = 40



Number of groups = 195 Center = 1575.856 StdDev = 1.61311

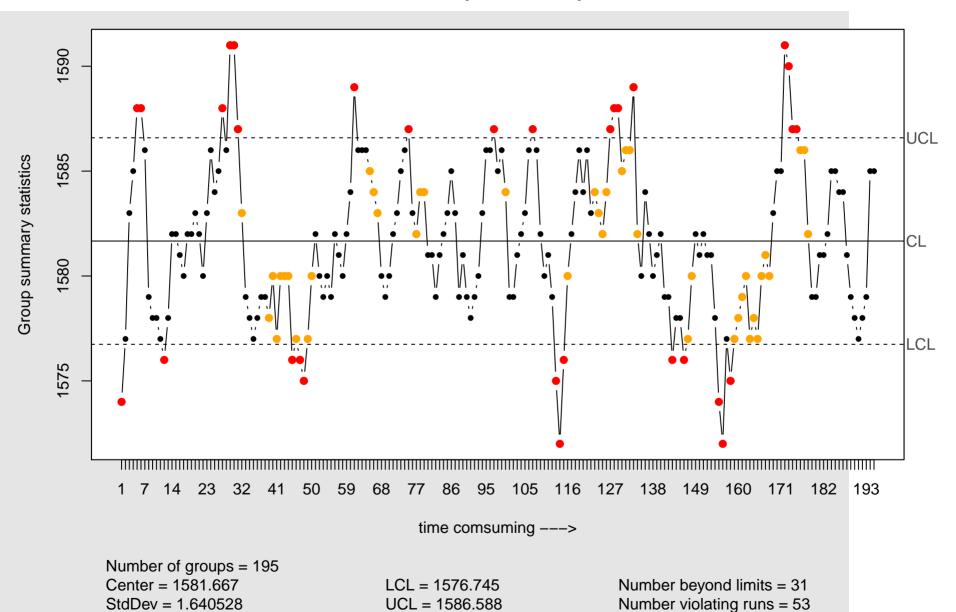
LCL = 1571.017 UCL = 1580.696 Number beyond limits = 35 Number violating runs = 44

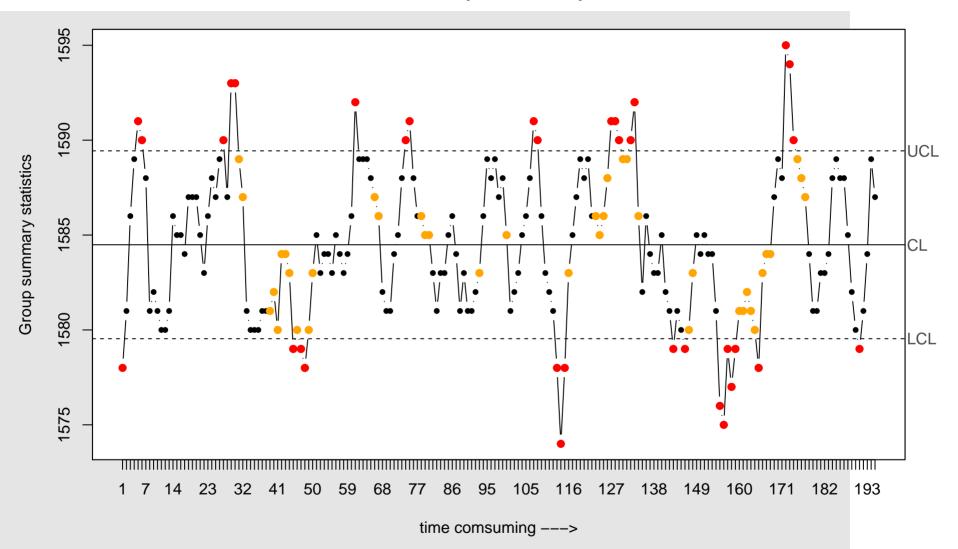


Number of groups = 195 Center = 1578.892 StdDev = 1.567412

LCL = 1574.19 UCL = 1583.595

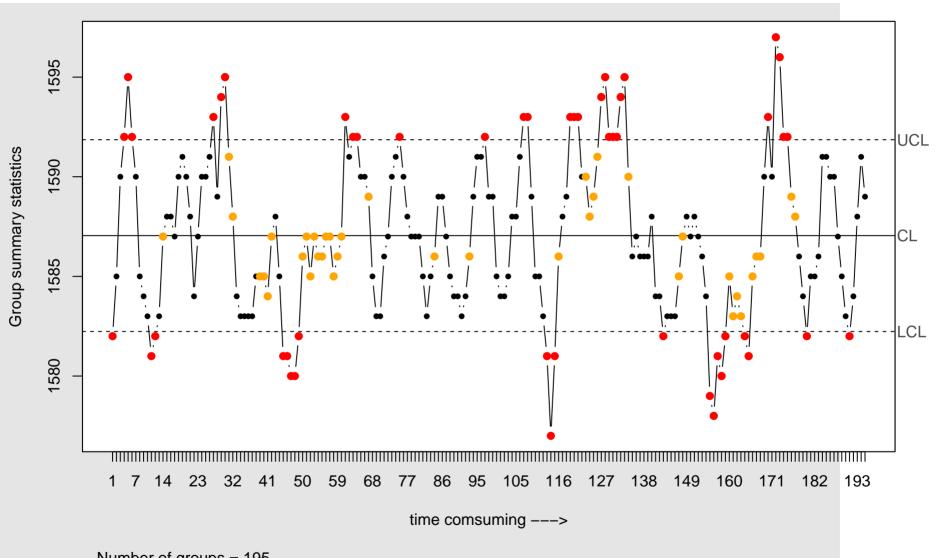
Number beyond limits = 42 Number violating runs = 56





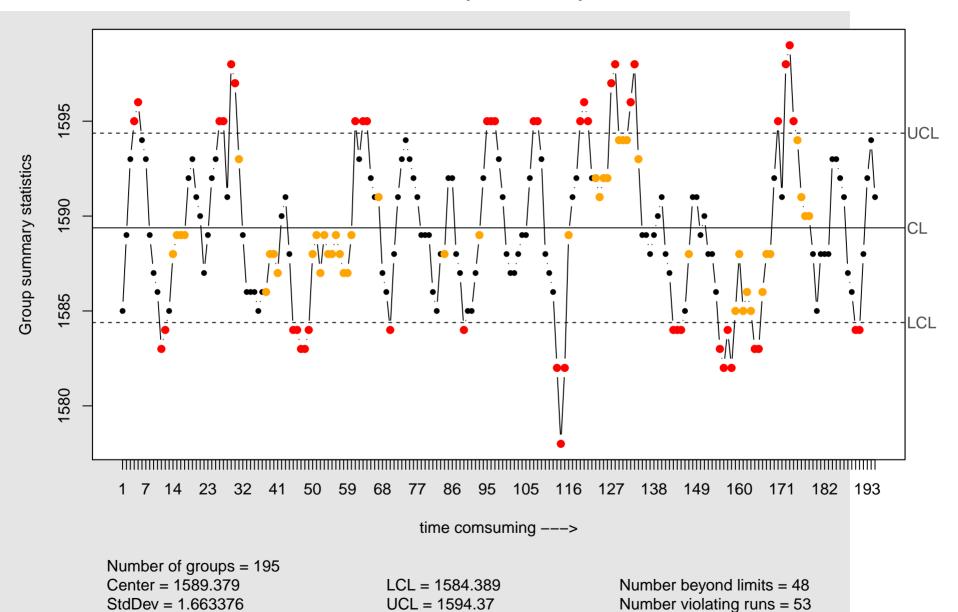
Number of groups = 195 Center = 1584.487 StdDev = 1.649667

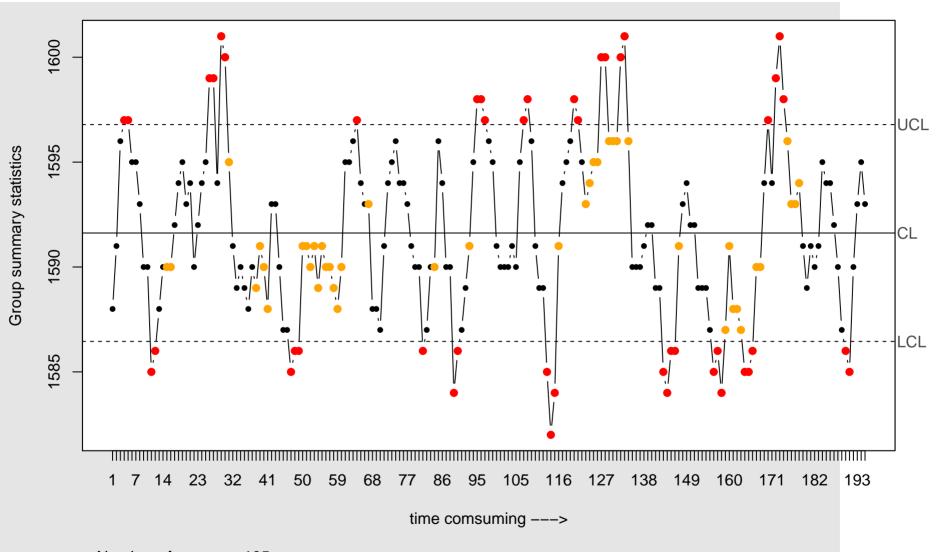
LCL = 1579.538 UCL = 1589.436 Number beyond limits = 34 Number violating runs = 52



Number of groups = 195 Center = 1587.046 StdDev = 1.60397

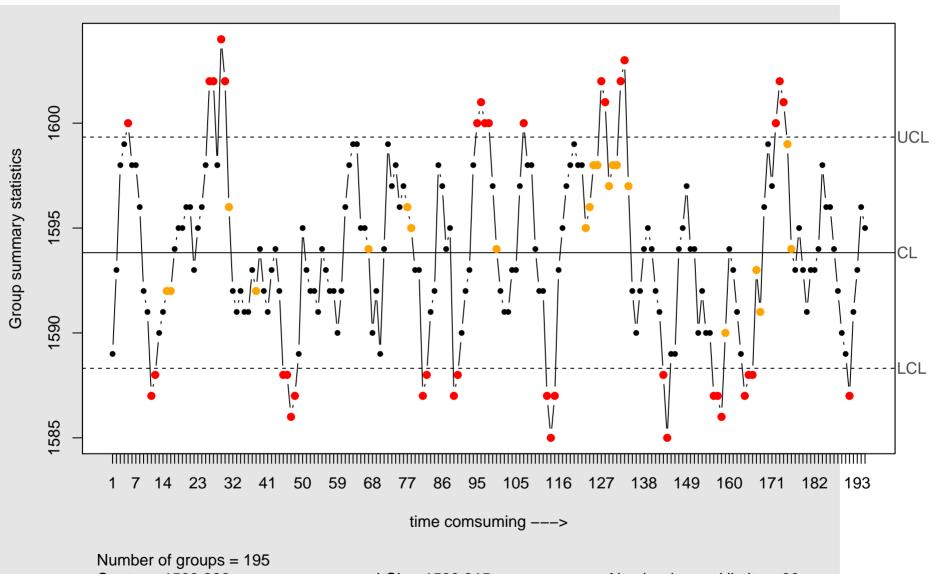
LCL = 1582.234 UCL = 1591.858 Number beyond limits = 49 Number violating runs = 51





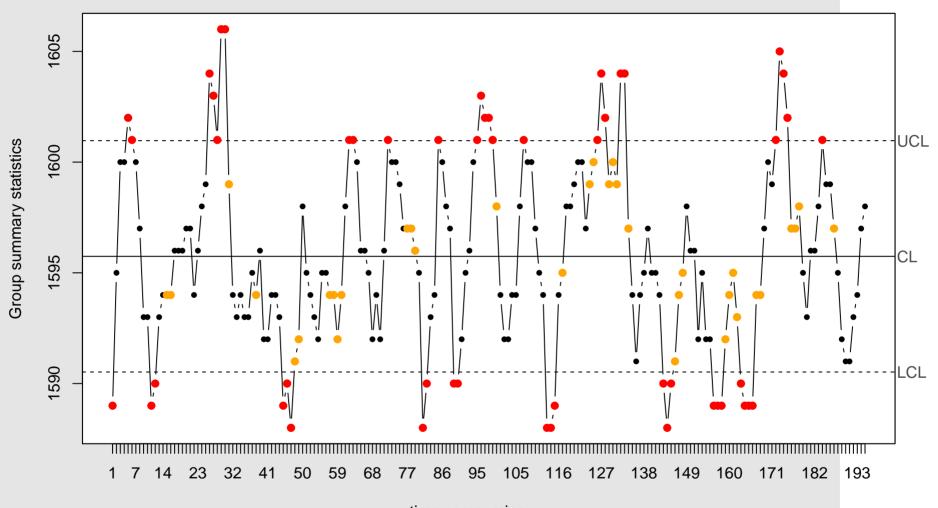
Number of groups = 195 Center = 1591.621 StdDev = 1.722783

LCL = 1586.452 UCL = 1596.789 Number beyond limits = 45 Number violating runs = 52



Number of groups = 195 Center = 1593.826 StdDev = 1.837026

LCL = 1588.315 UCL = 1599.337 Number beyond limits = 39 Number violating runs = 28

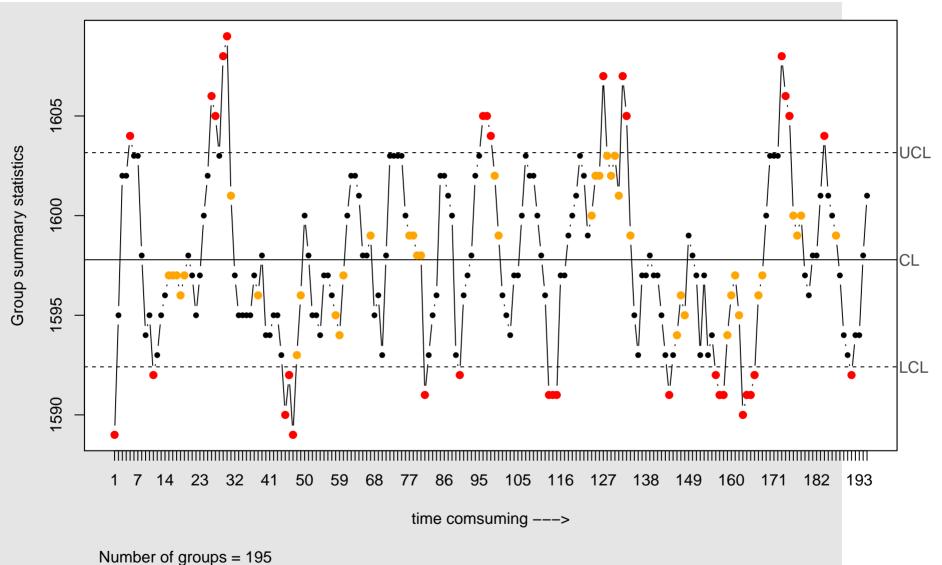


time comsuming --->

Number of groups = 195 Center = 1595.744 StdDev = 1.741062

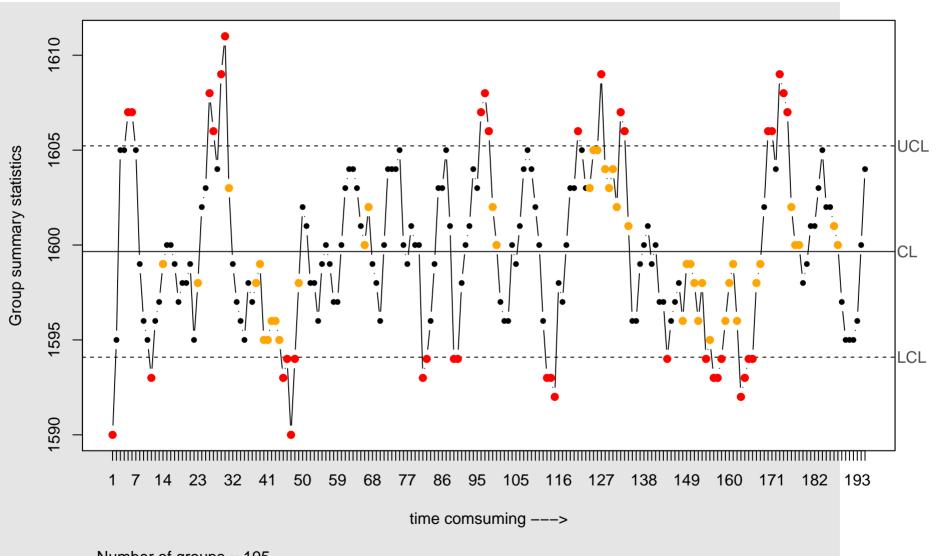
LCL = 1590.52 UCL = 1600.967

Number beyond limits = 50 Number violating runs = 50



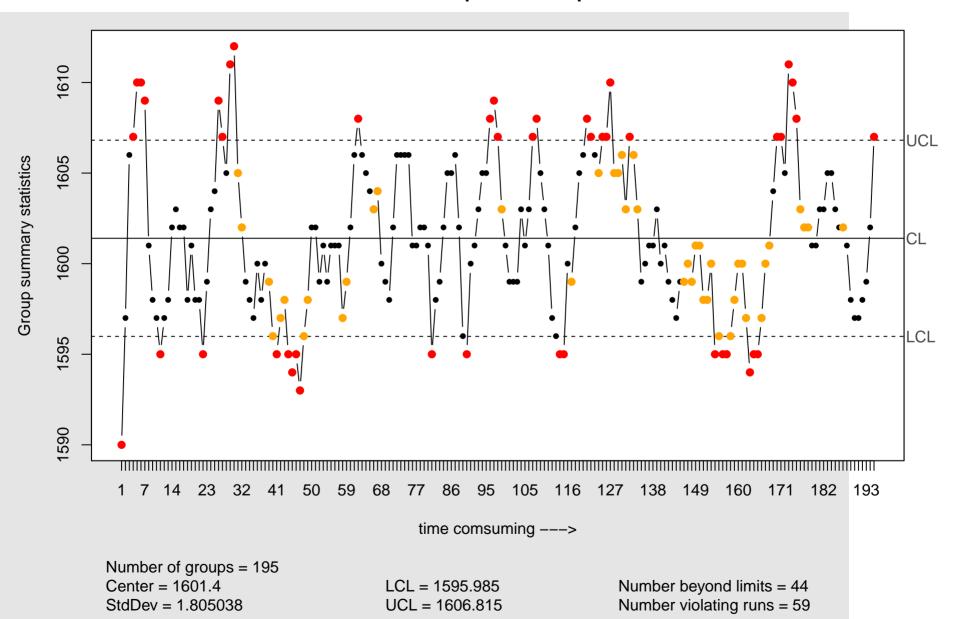
Number of groups = 195 Center = 1597.785 StdDev = 1.791329

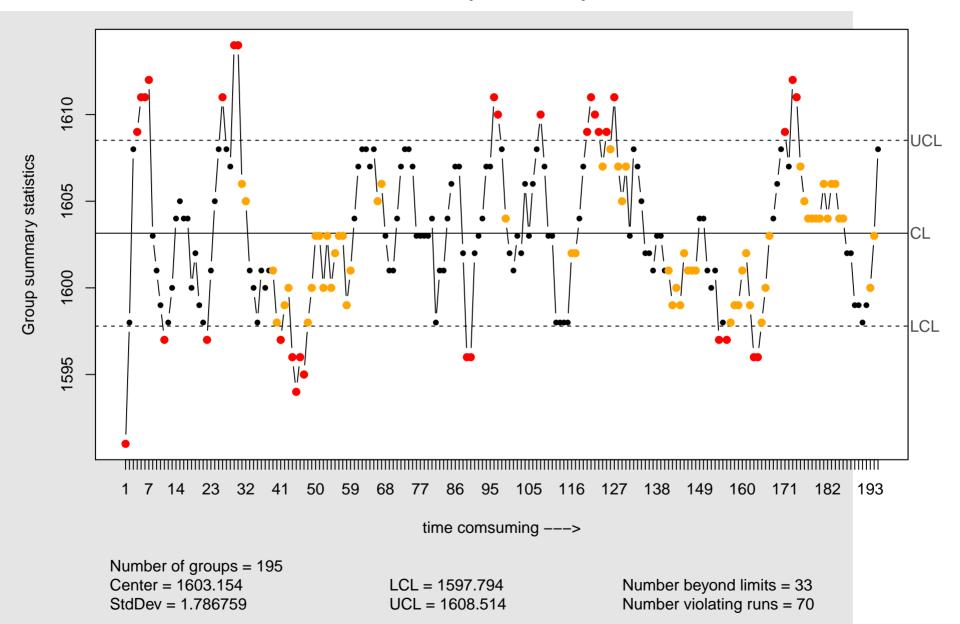
LCL = 1592.411 UCL = 1603.159 Number beyond limits = 34 Number violating runs = 53

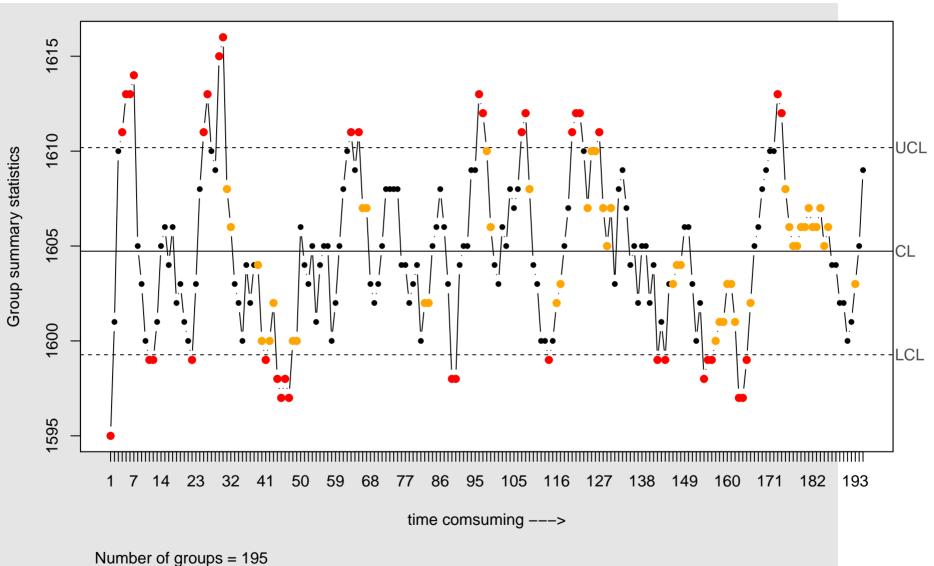


Number of groups = 195 Center = 1599.656 StdDev = 1.855305

LCL = 1594.09 UCL = 1605.222 Number beyond limits = 40 Number violating runs = 59

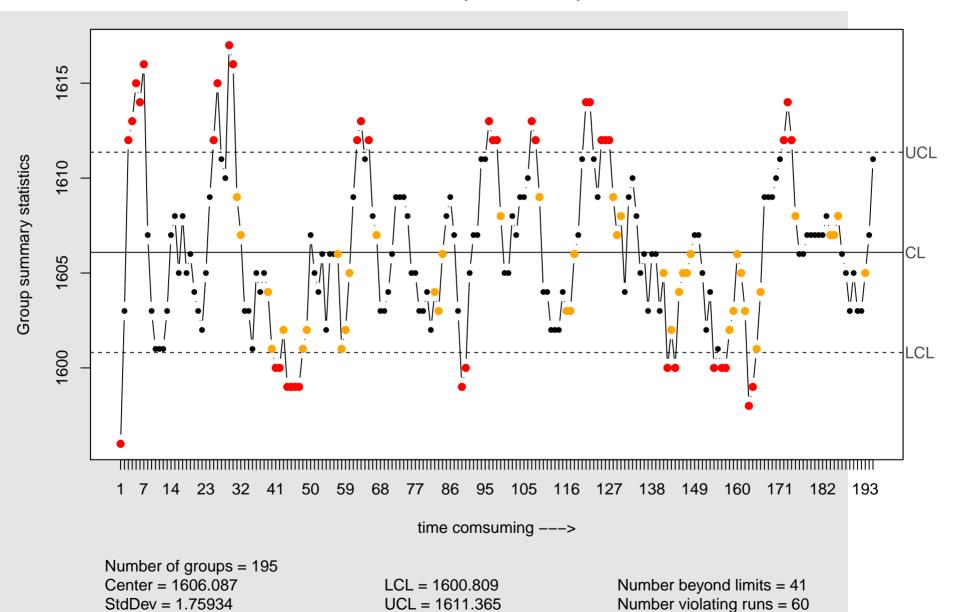


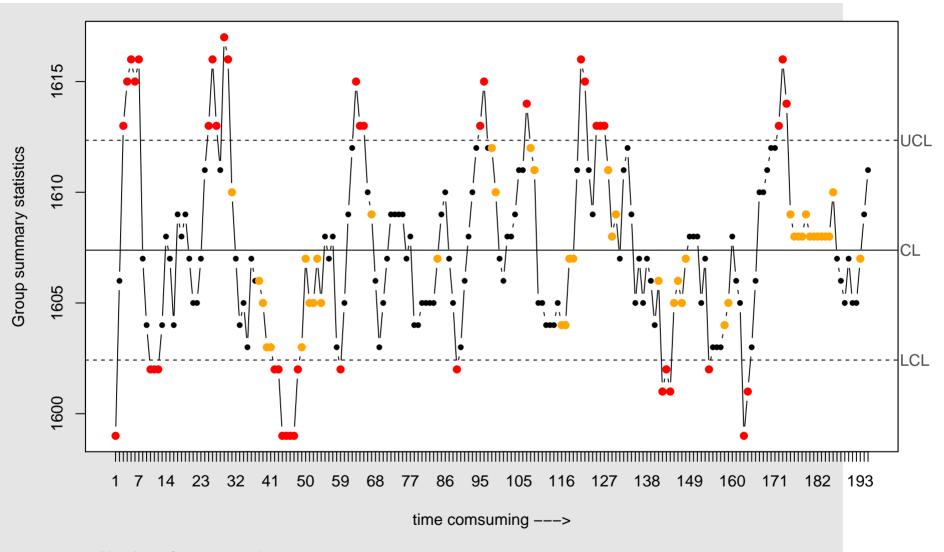




Number of groups = 195 Center = 1604.728 StdDev = 1.818747

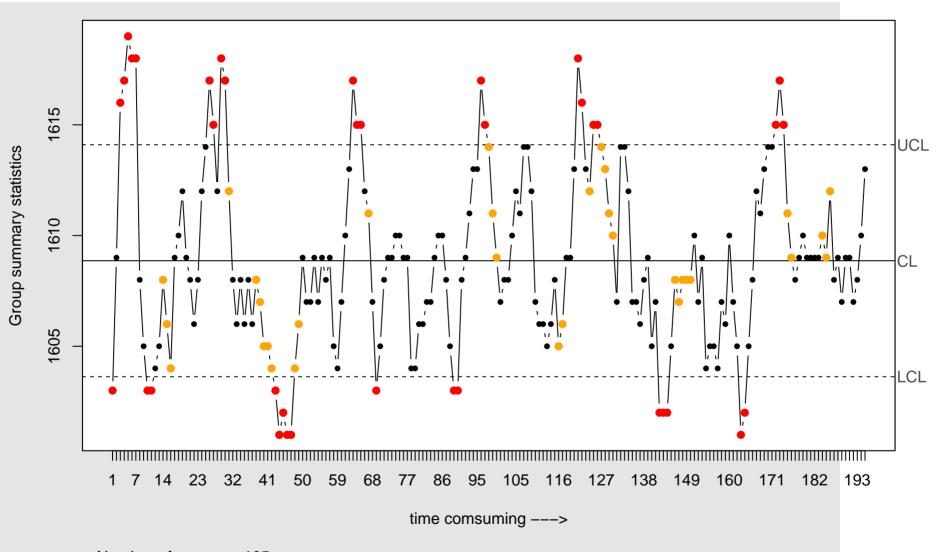
LCL = 1599.272 UCL = 1610.184 Number beyond limits = 40 Number violating runs = 59





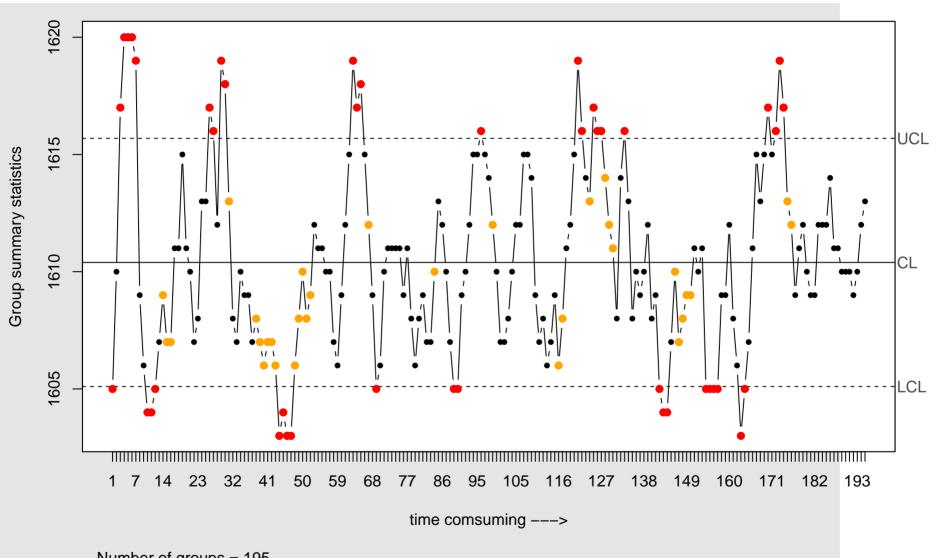
Number of groups = 195 Center = 1607.385 StdDev = 1.654237

LCL = 1602.422 UCL = 1612.347 Number beyond limits = 43 Number violating runs = 59



Number of groups = 195 Center = 1608.862 StdDev = 1.745631

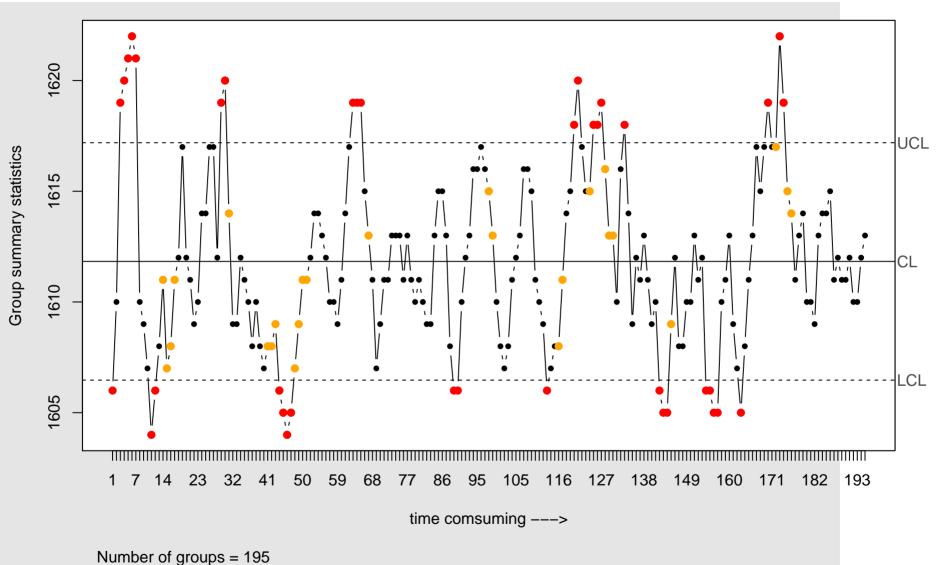
LCL = 1603.625 UCL = 1614.098 Number beyond limits = 37 Number violating runs = 42



Number of groups = 195 Center = 1610.395 StdDev = 1.76391

LCL = 1605.103 UCL = 1615.687

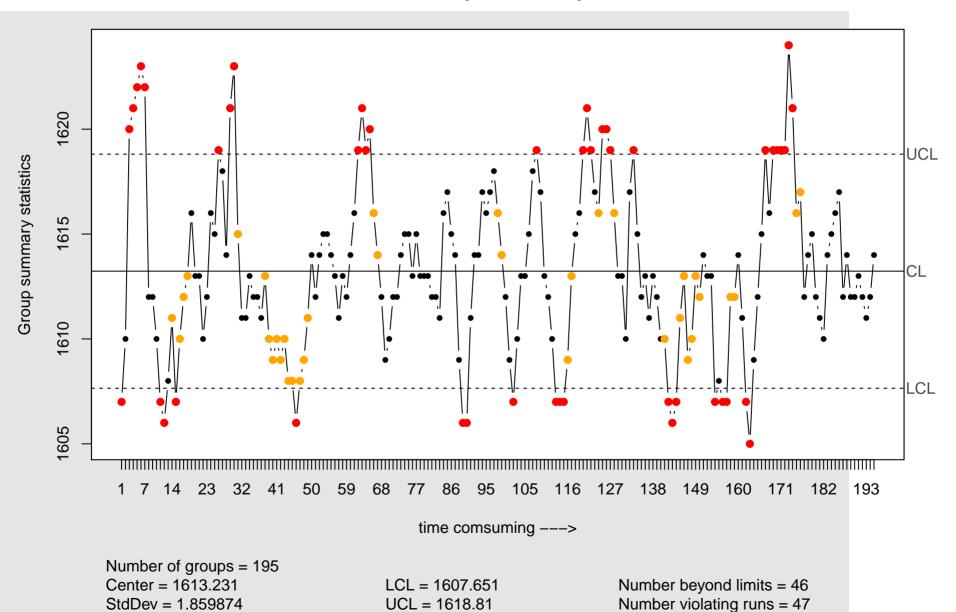
Number beyond limits = 43 Number violating runs = 42

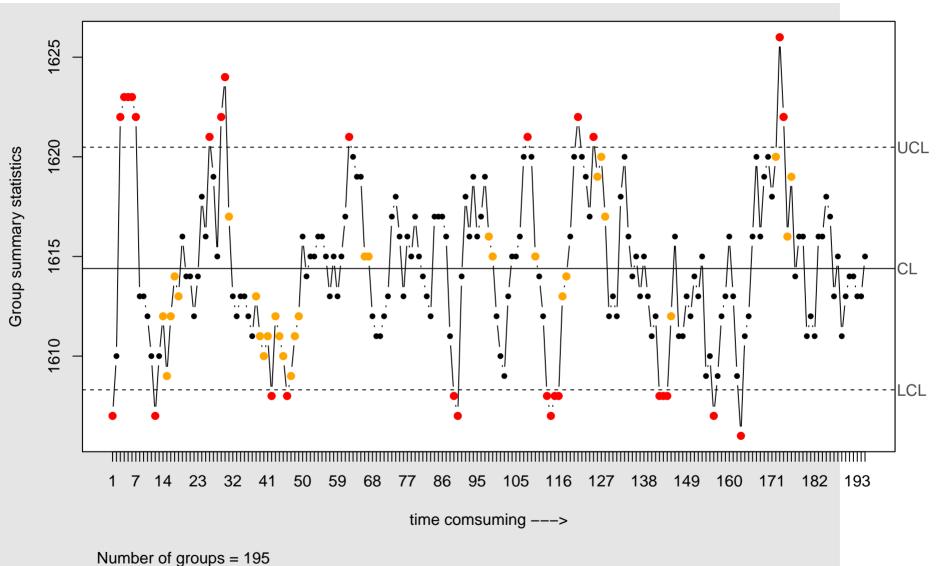


Number of groups = 195 Center = 1611.831 StdDev = 1.786759

LCL = 1606.47 UCL = 1617.191

Number beyond limits = 37 Number violating runs = 35

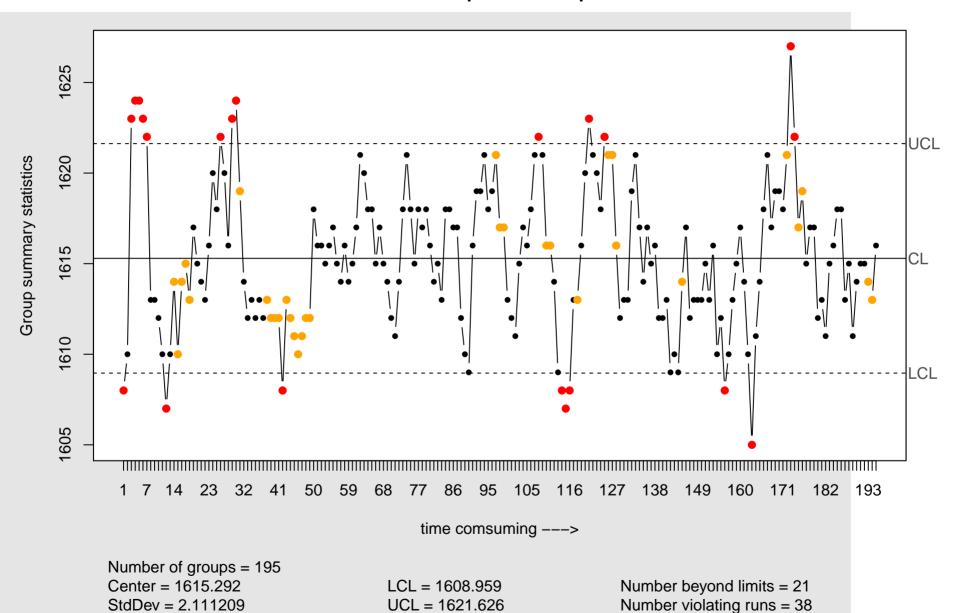


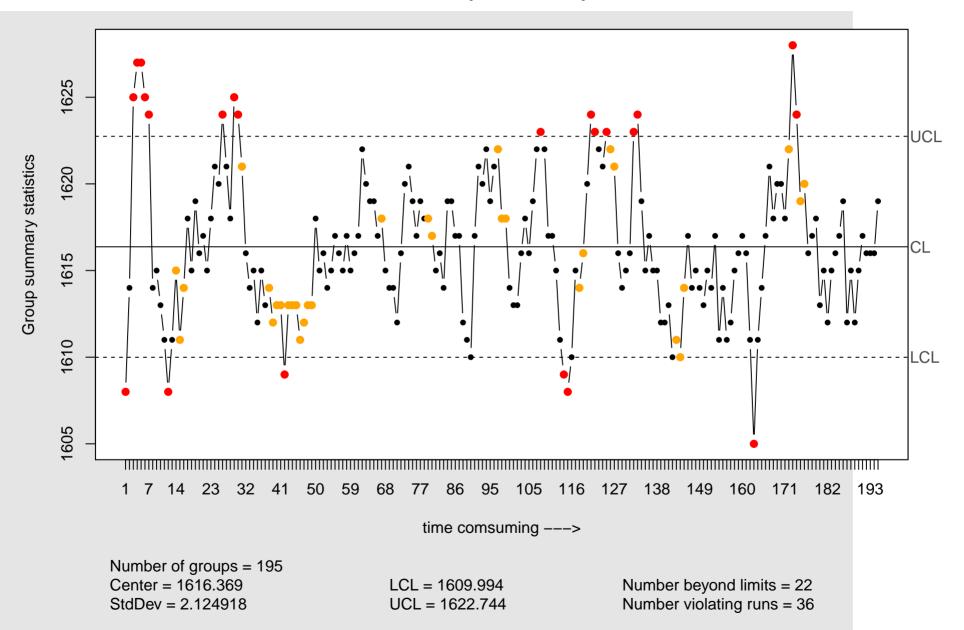


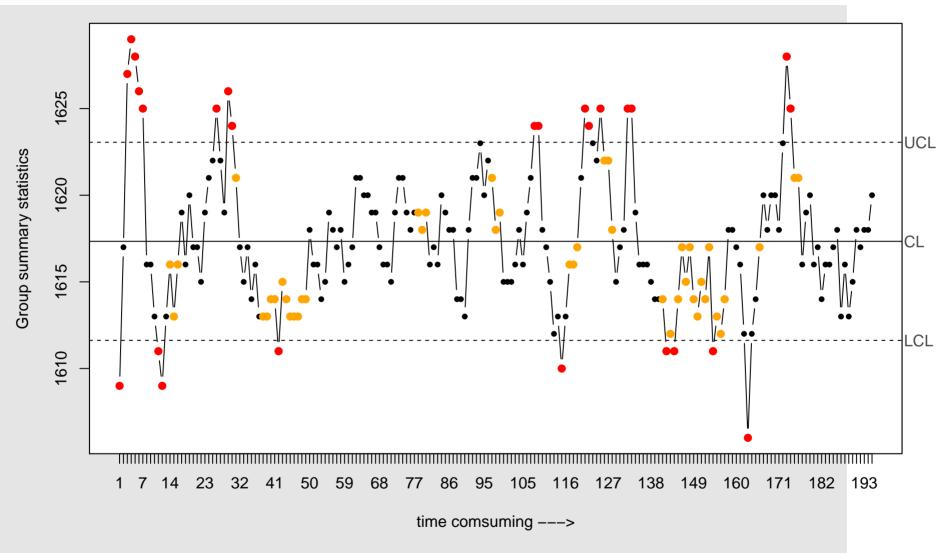
Number of groups = 195 Center = 1614.395 StdDev = 2.028954

LCL = 1608.308 UCL = 1620.482

Number beyond limits = 29 Number violating runs = 36



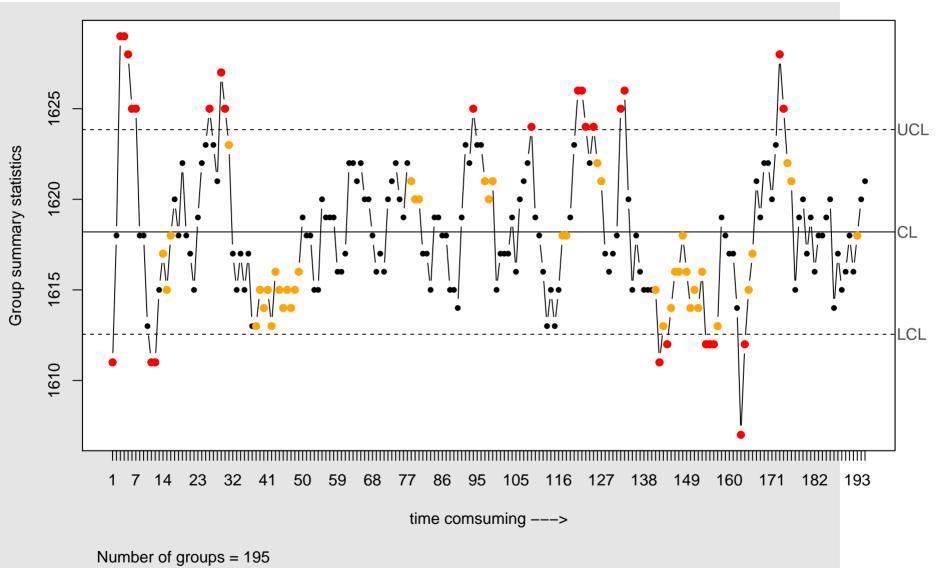




Number of groups = 195 Center = 1617.338

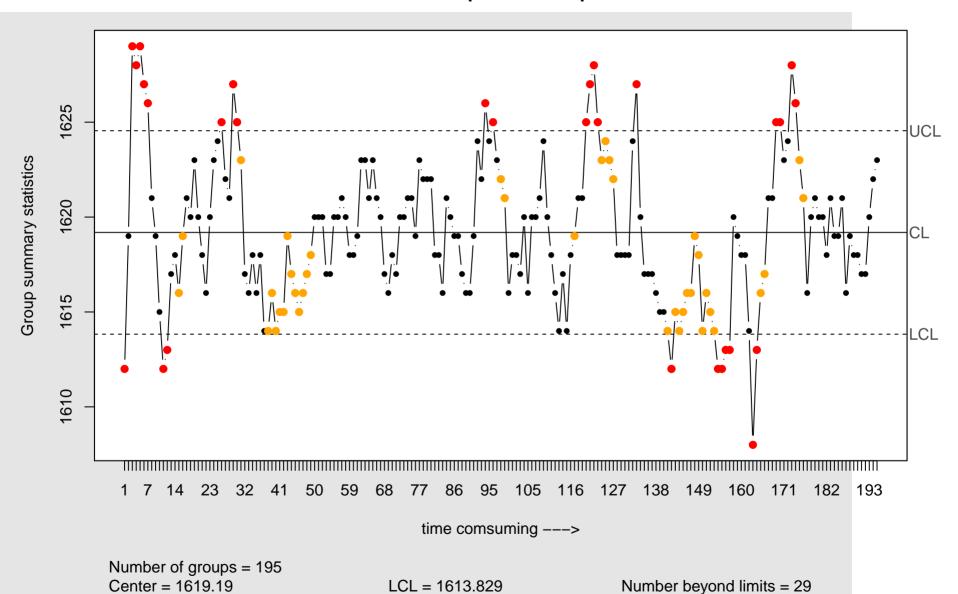
StdDev = 1.905571

LCL = 1611.622 UCL = 1623.055 Number beyond limits = 26 Number violating runs = 52



Number of groups = 195 Center = 1618.2 StdDev = 1.882723

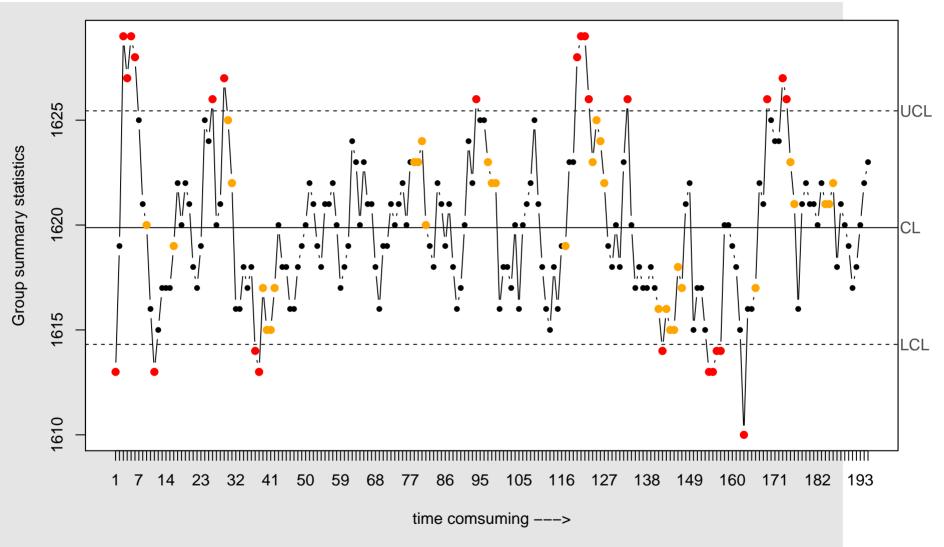
LCL = 1612.552 UCL = 1623.848 Number beyond limits = 28 Number violating runs = 53



UCL = 1624.55

Number violating runs = 47

StdDev = 1.786759

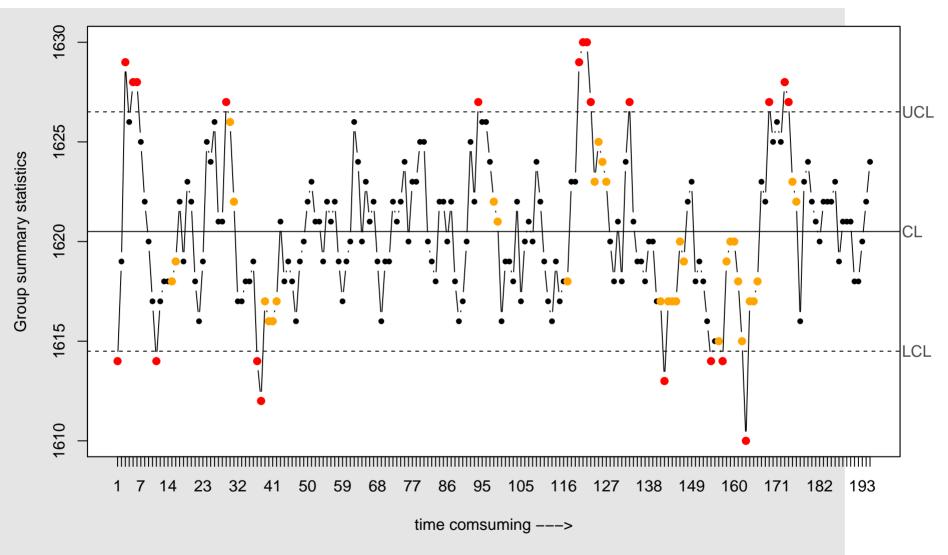


Number of groups = 195 Center = 1619.877

StdDev = 1.855305

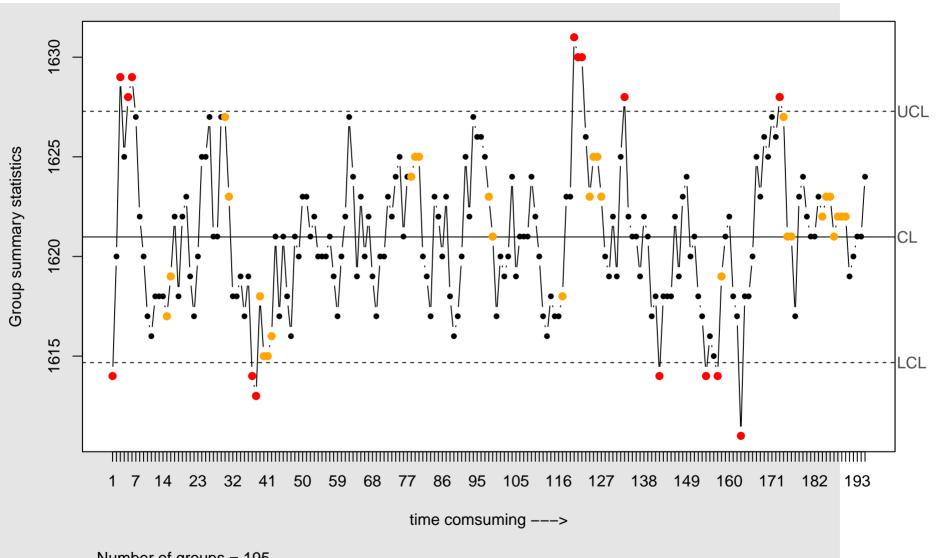
LCL = 1614.311 UCL = 1625.443

Number beyond limits = 25 Number violating runs = 38



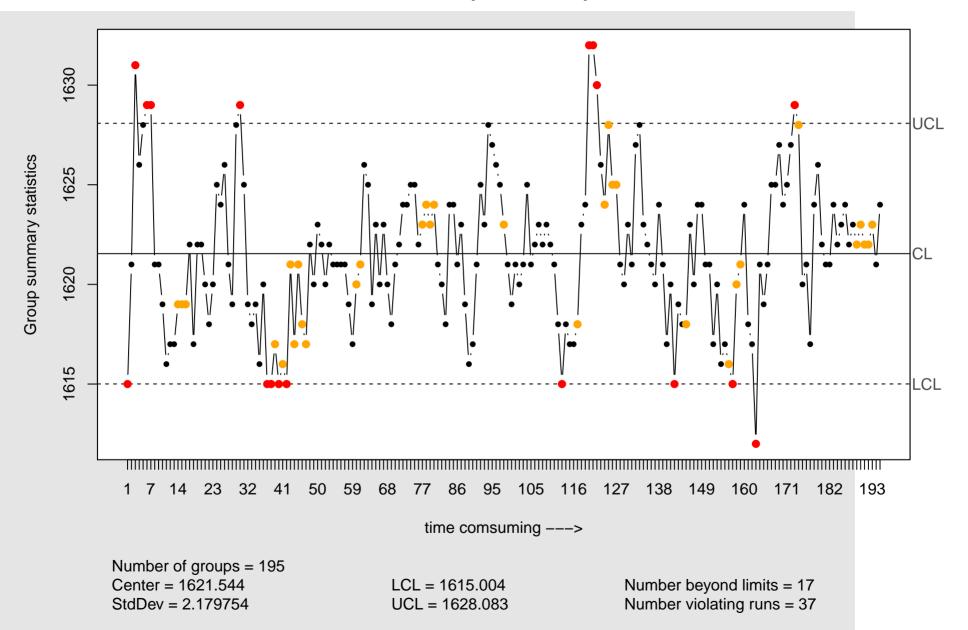
Number of groups = 195 Center = 1620.503 StdDev = 2.001535

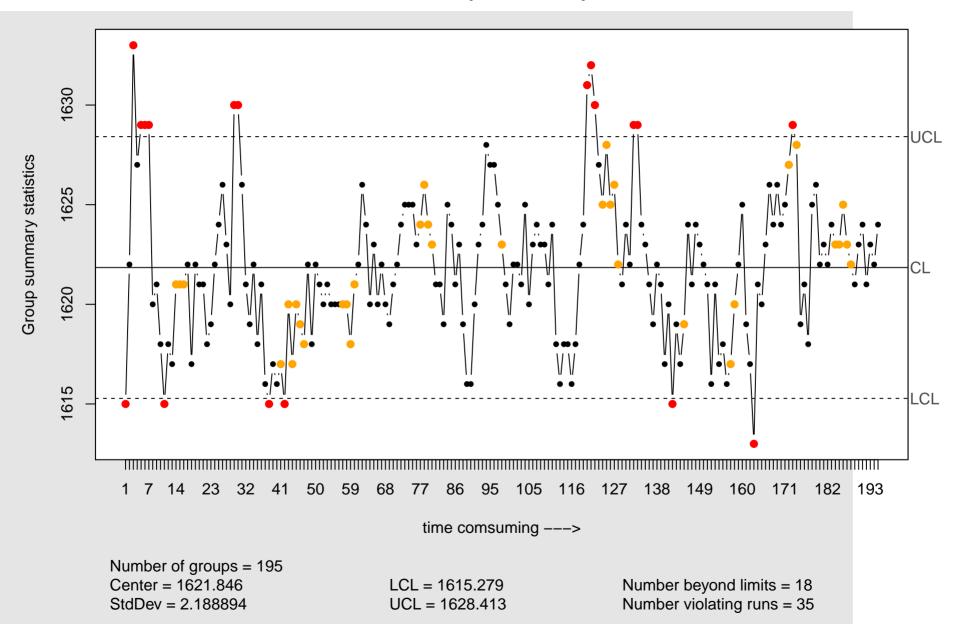
LCL = 1614.498 UCL = 1626.507 Number beyond limits = 21 Number violating runs = 38

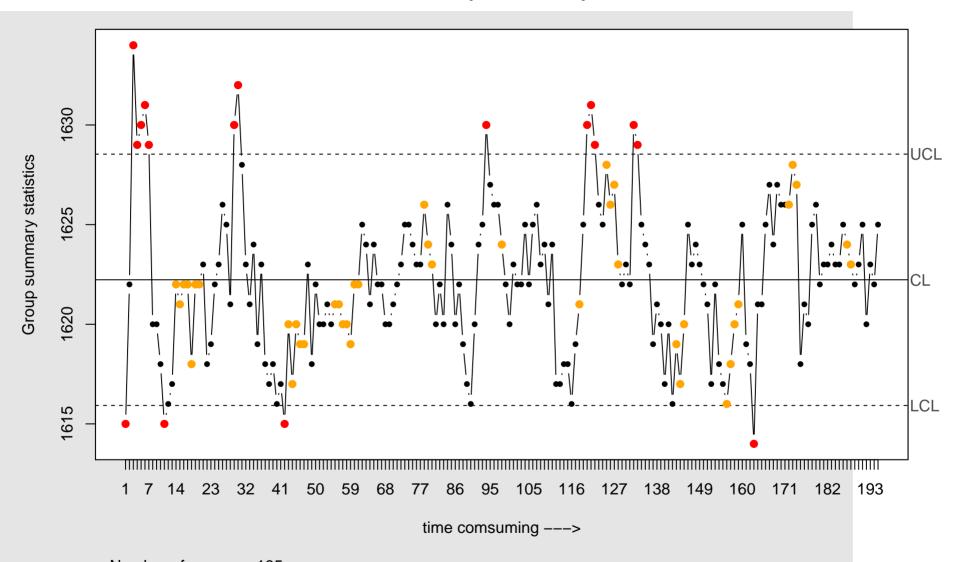


Number of groups = 195 Center = 1620.979 StdDev = 2.102069

LCL = 1614.673 UCL = 1627.286 Number beyond limits = 15 Number violating runs = 31



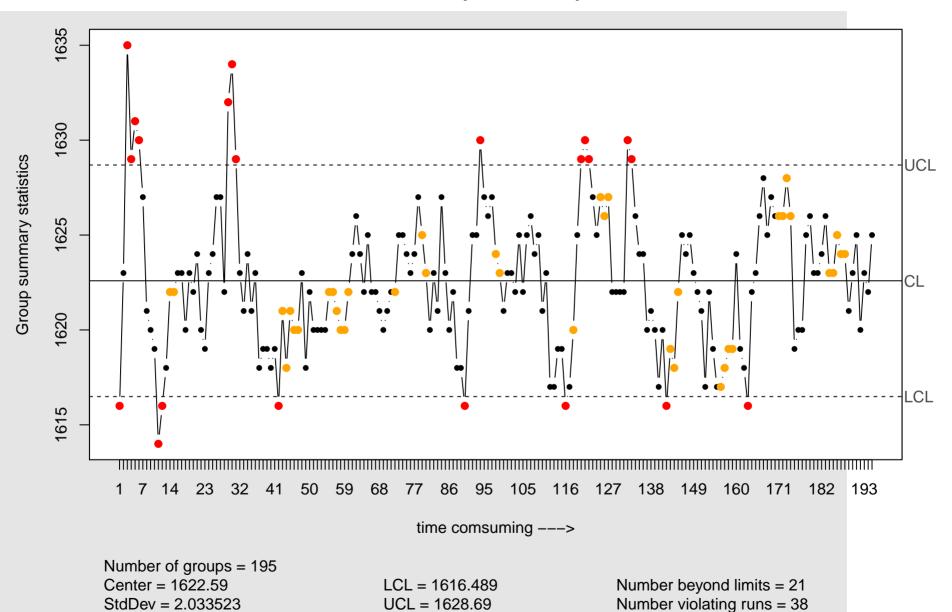


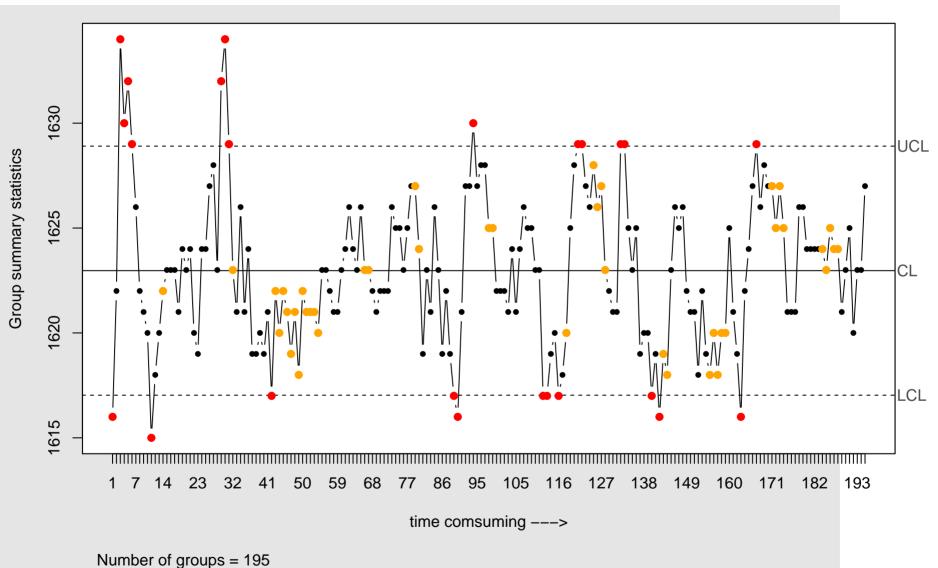


Number of groups = 195 Center = 1622.231 StdDev = 2.102069

LCL = 1615.925 UCL = 1628.537

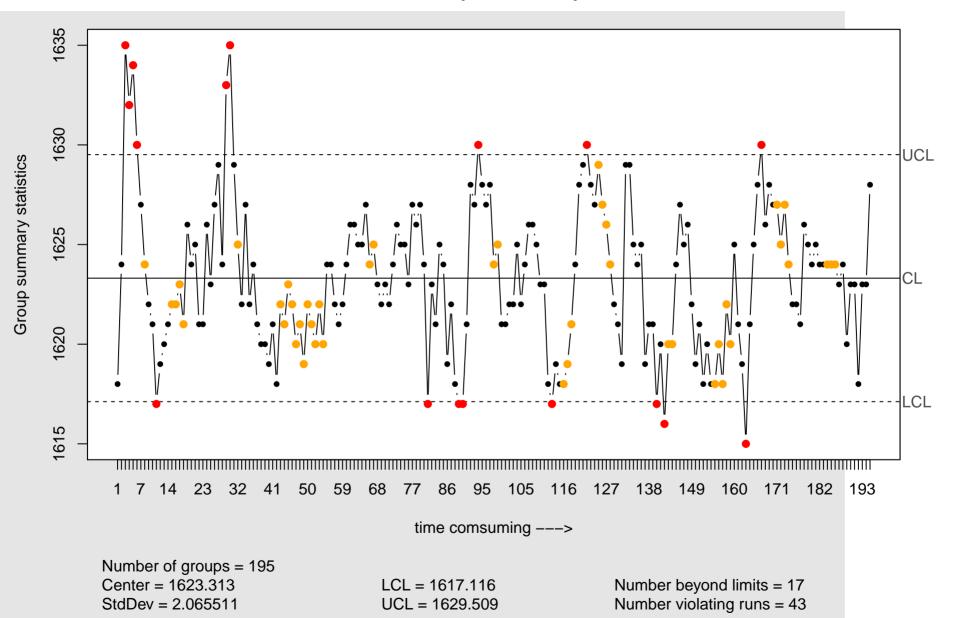
Number beyond limits = 17 Number violating runs = 40

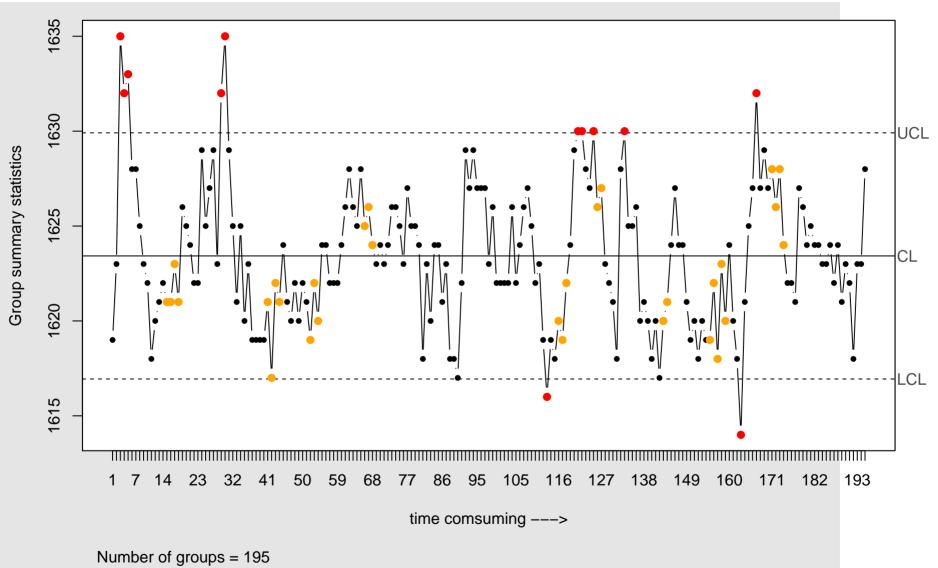




Number of groups = 195 Center = 1622.969 StdDev = 1.978687

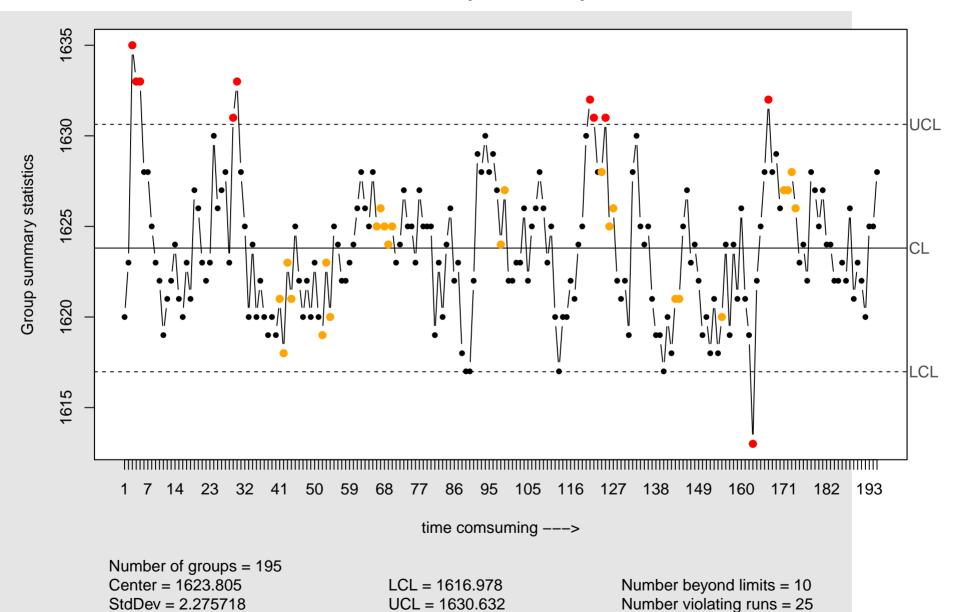
LCL = 1617.033 UCL = 1628.905 Number beyond limits = 24 Number violating runs = 43

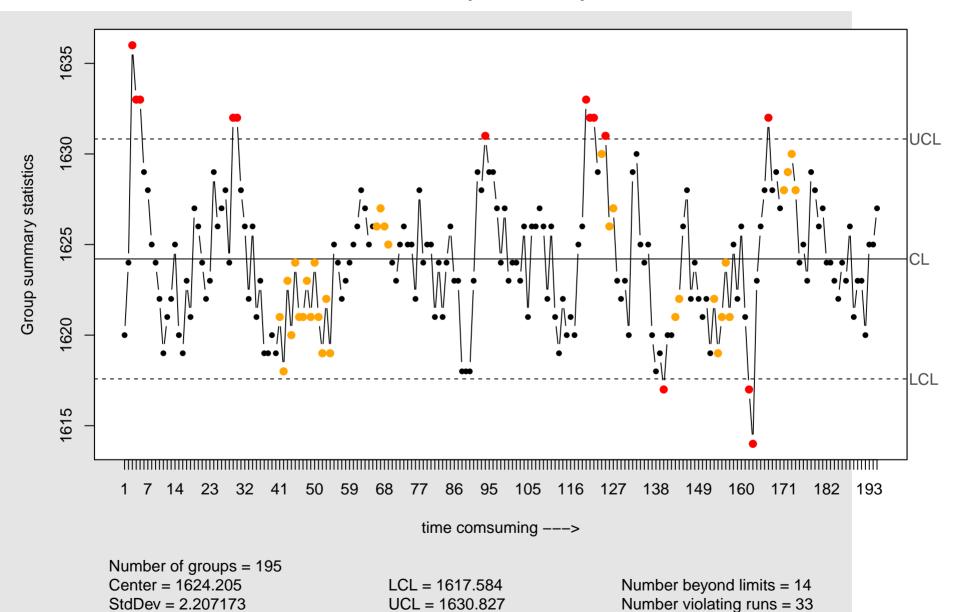


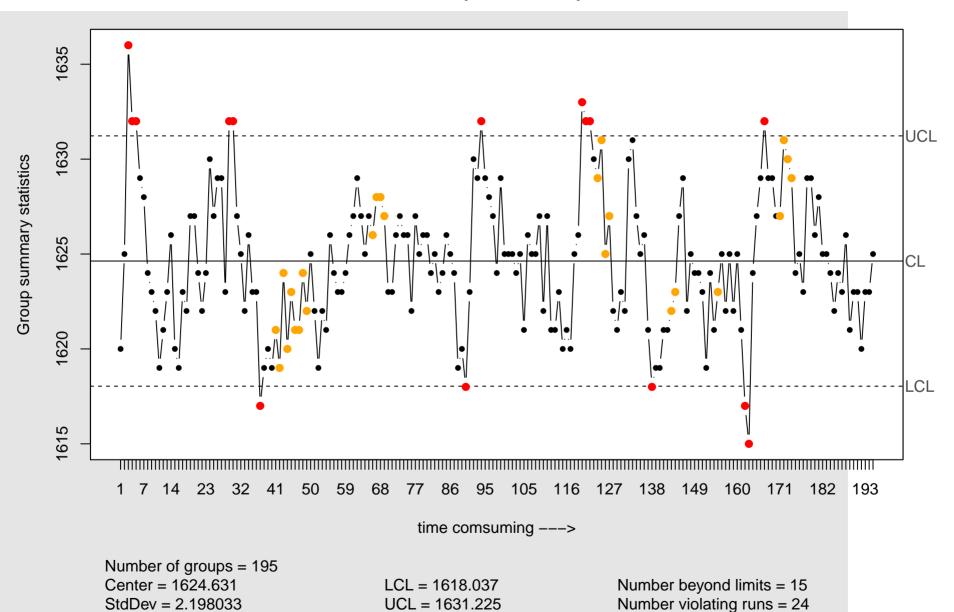


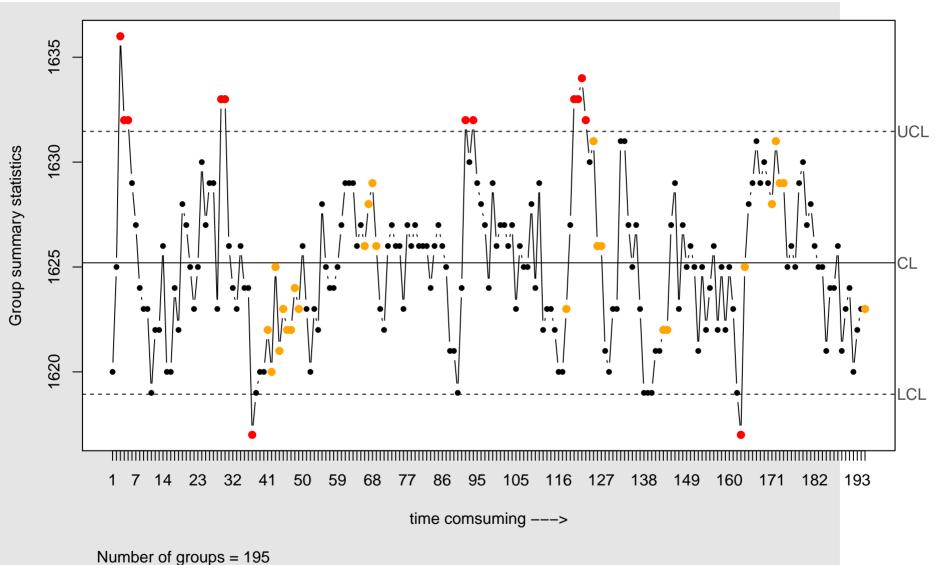
Number of groups = 195 Center = 1623.426 StdDev = 2.161475

LCL = 1616.941 UCL = 1629.91 Number beyond limits = 12 Number violating runs = 31



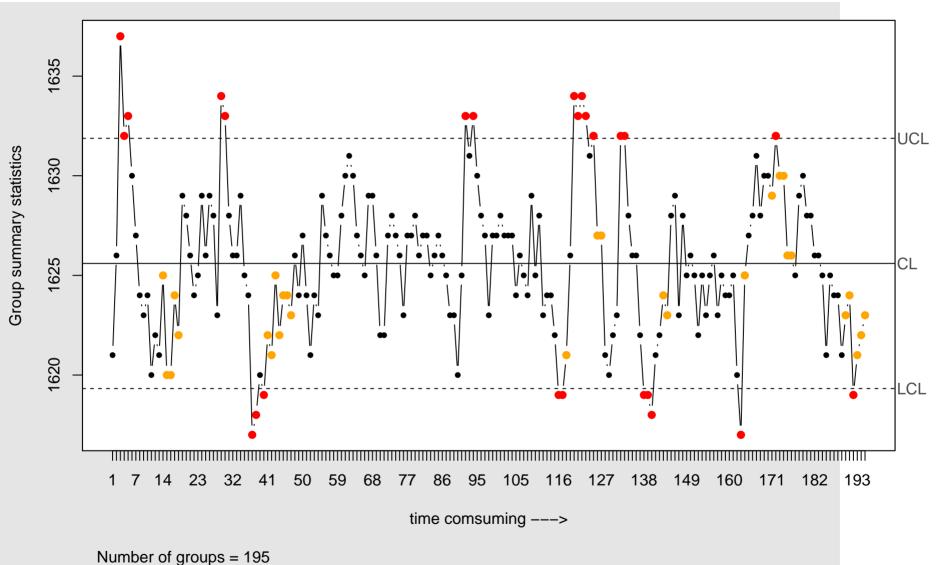






Number of groups = 195 Center = 1625.2 StdDev = 2.08836

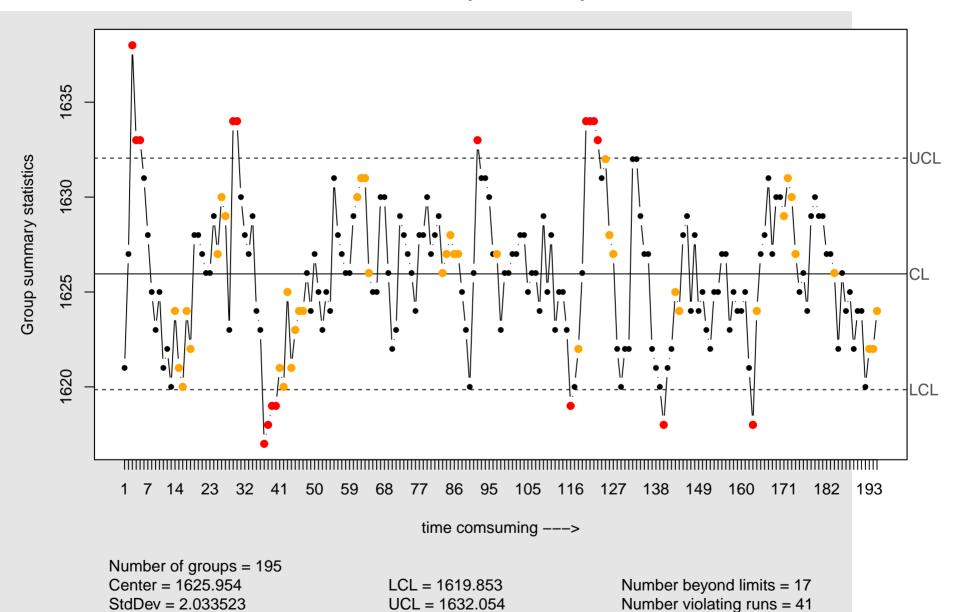
LCL = 1618.935 UCL = 1631.465 Number beyond limits = 13 Number violating runs = 26

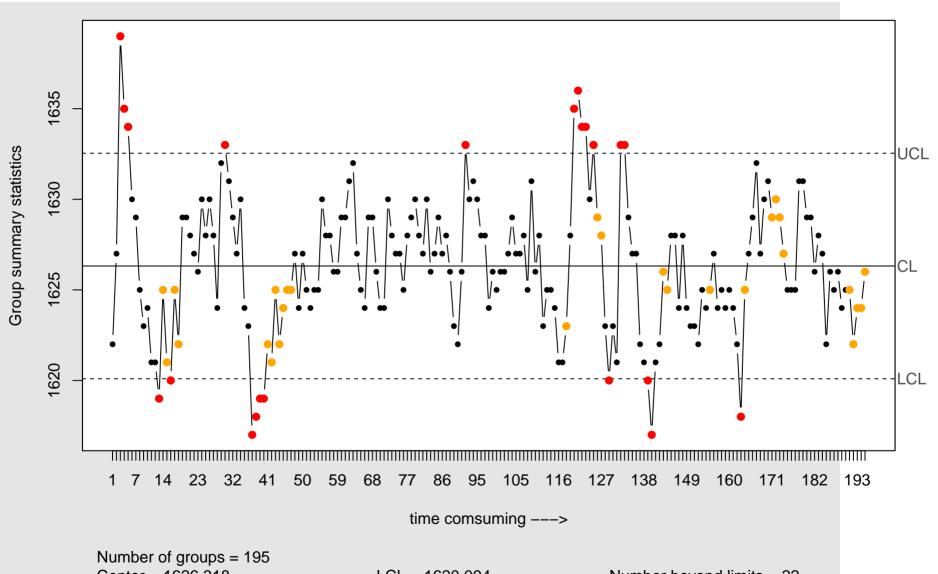


Number of groups = 195 Center = 1625.6 StdDev = 2.09293

LCL = 1619.321 UCL = 1631.879

Number beyond limits = 25 Number violating runs = 32

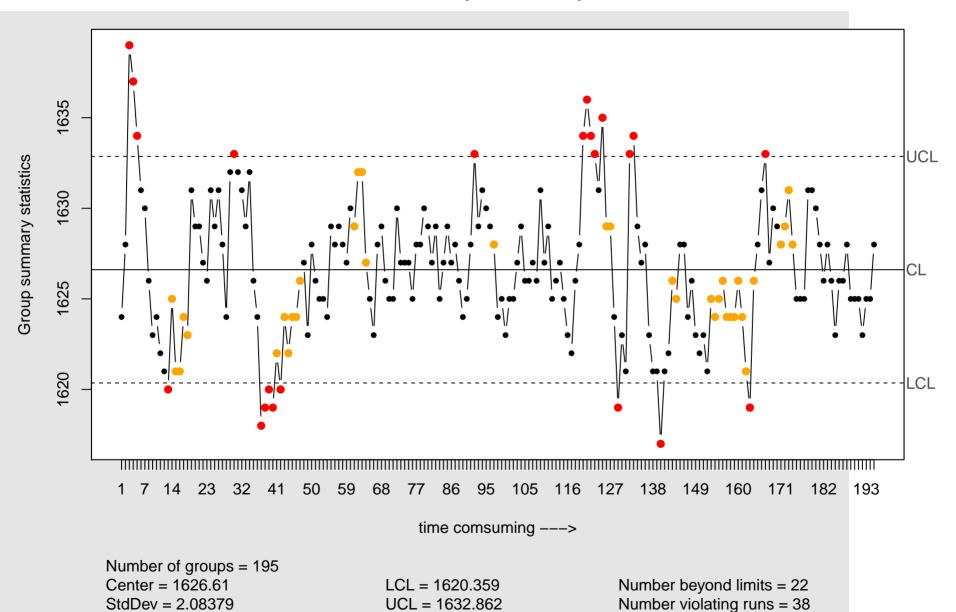


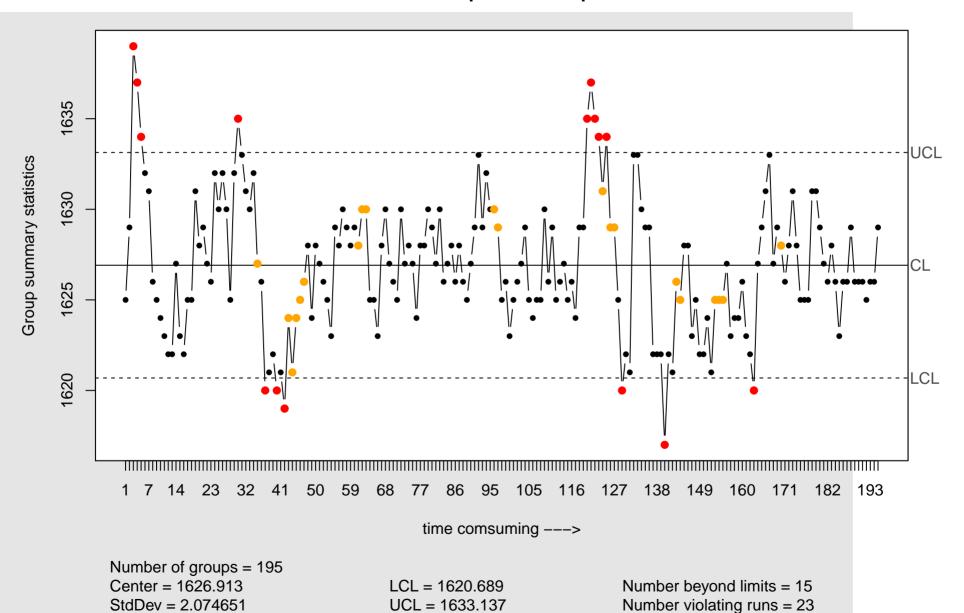


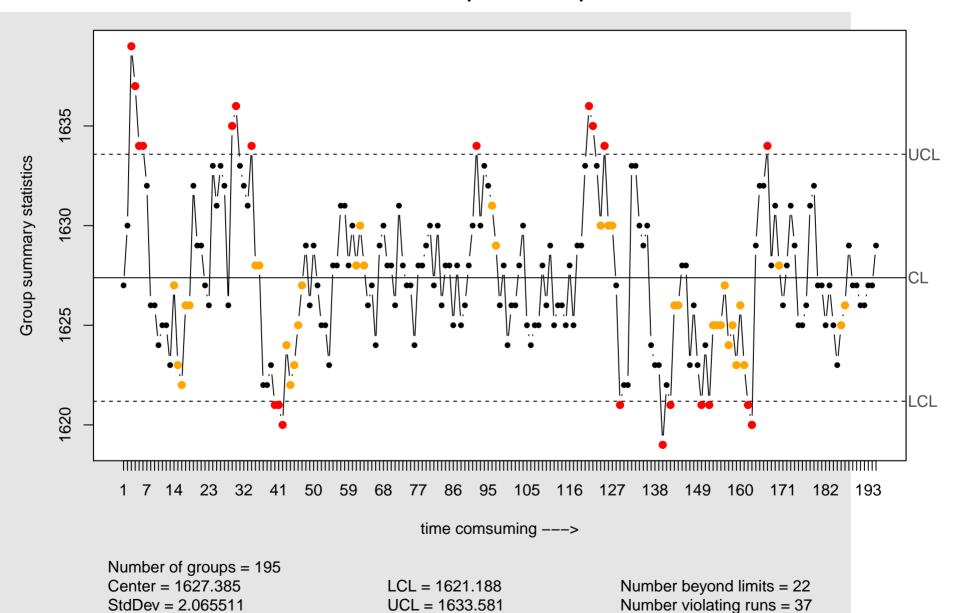
Number of groups = 195 Center = 1626.318 StdDev = 2.074651

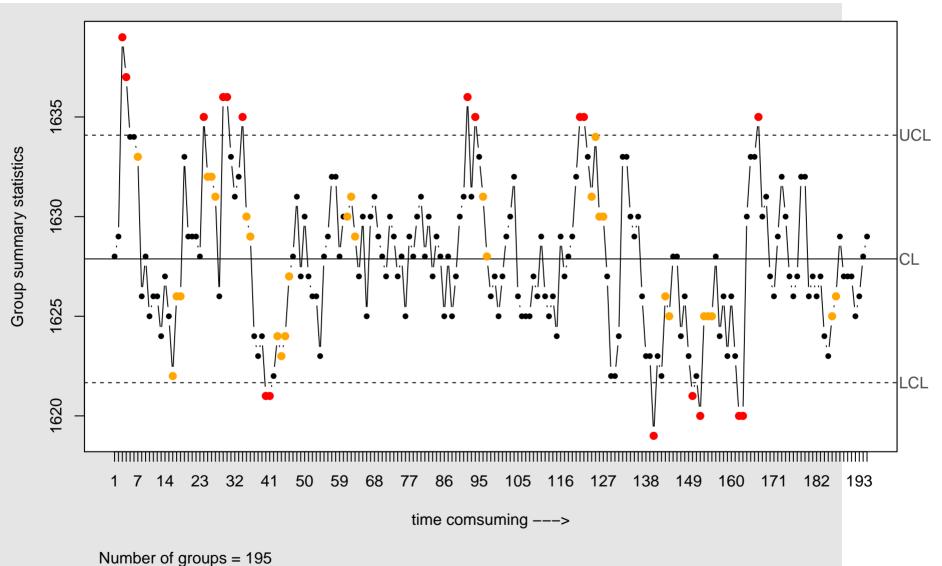
LCL = 1620.094 UCL = 1632.542

Number beyond limits = 22 Number violating runs = 30



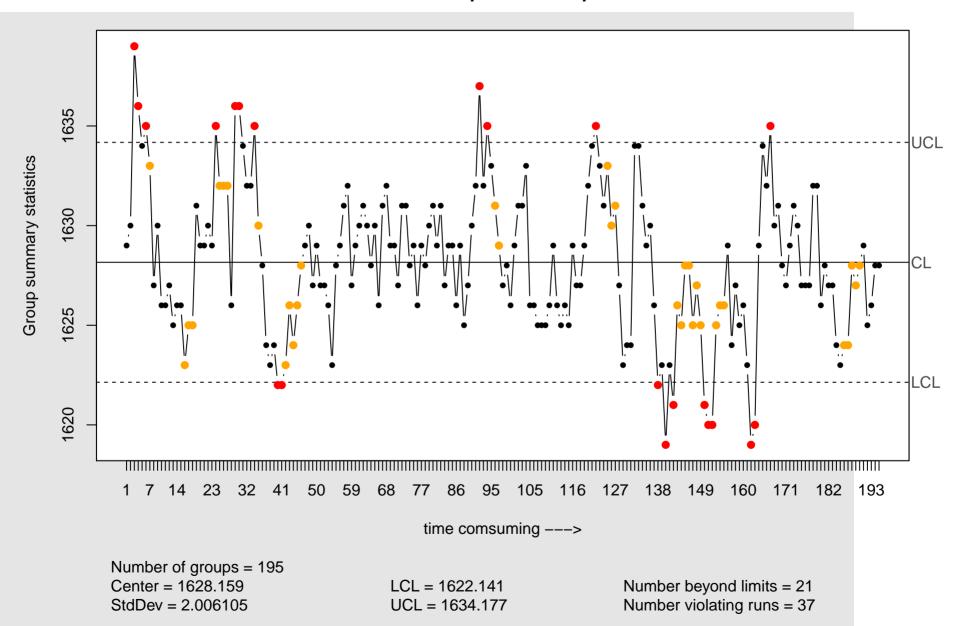


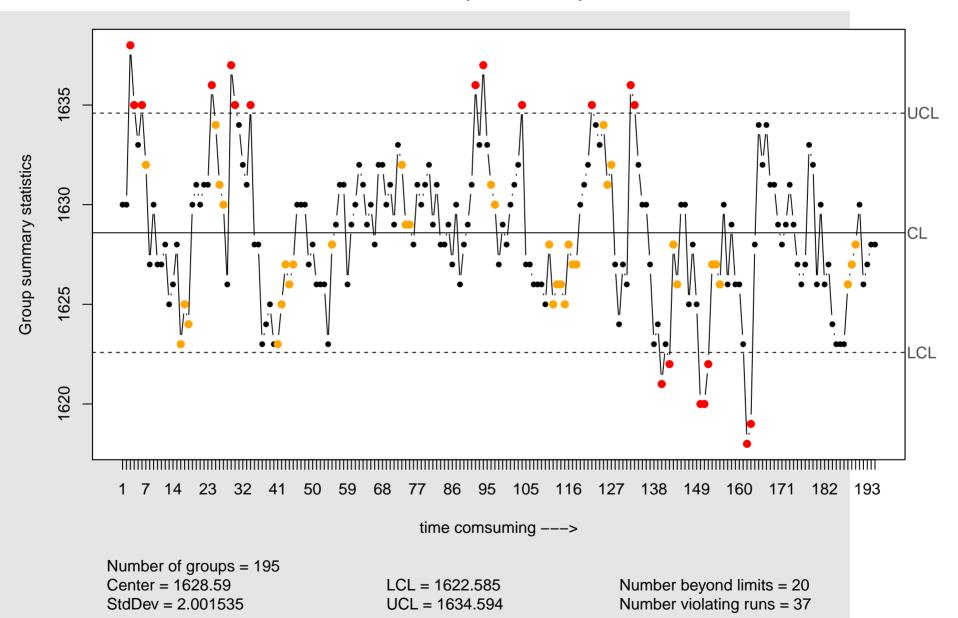


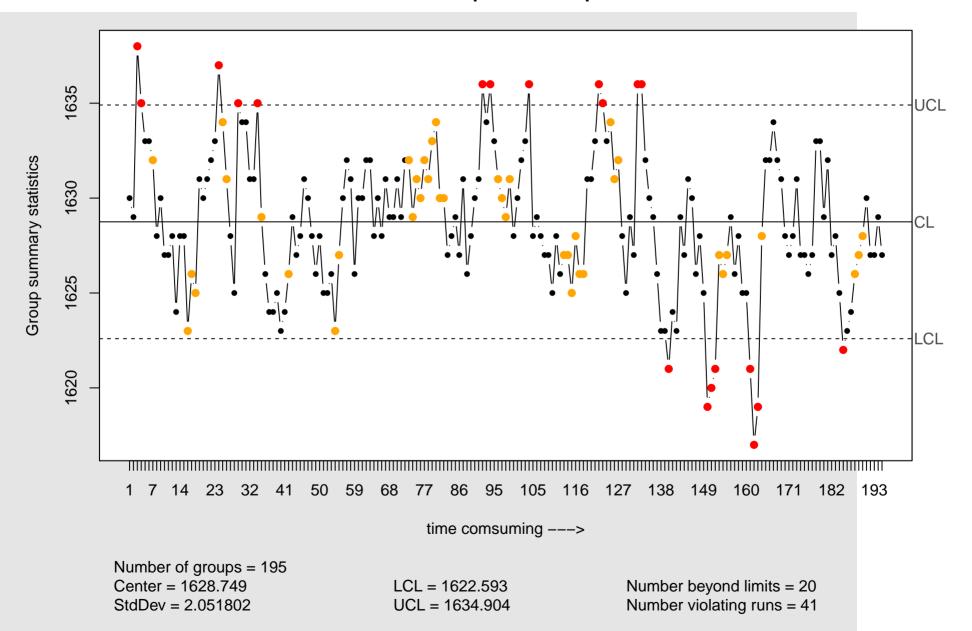


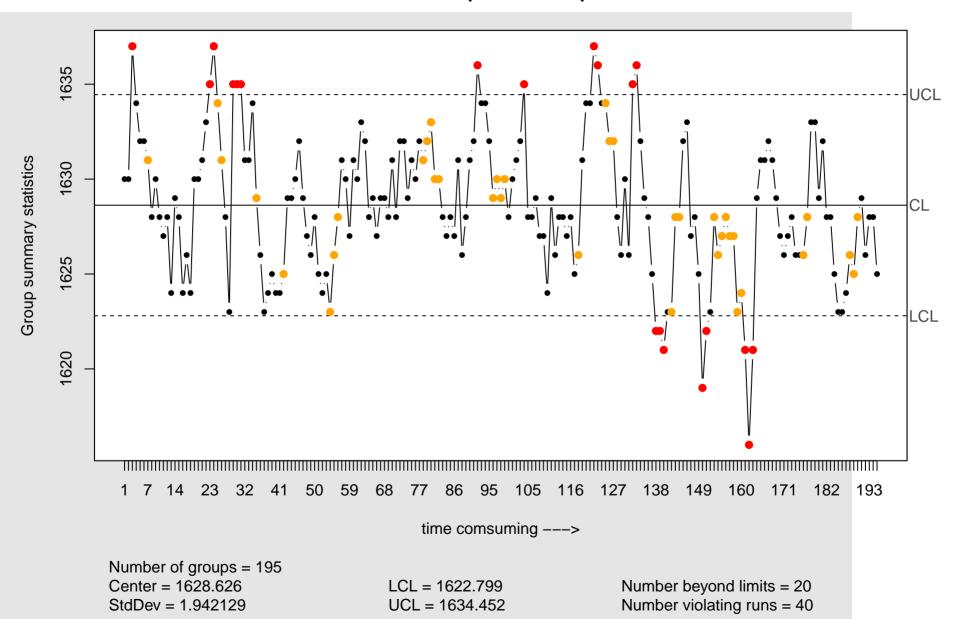
Number of groups = 195 Center = 1627.877 StdDev = 2.070081

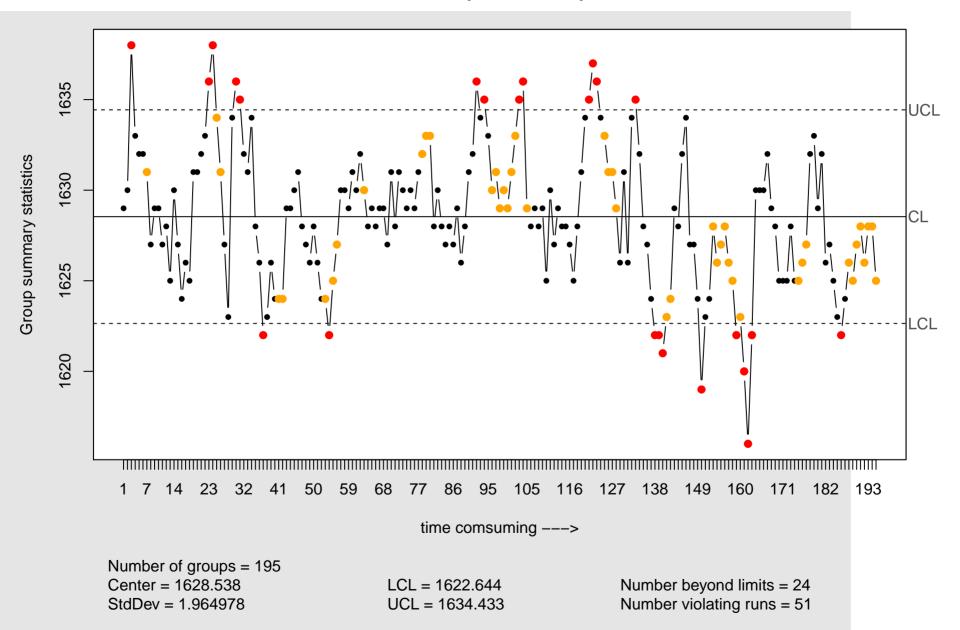
LCL = 1621.667 UCL = 1634.087 Number beyond limits = 18 Number violating runs = 30

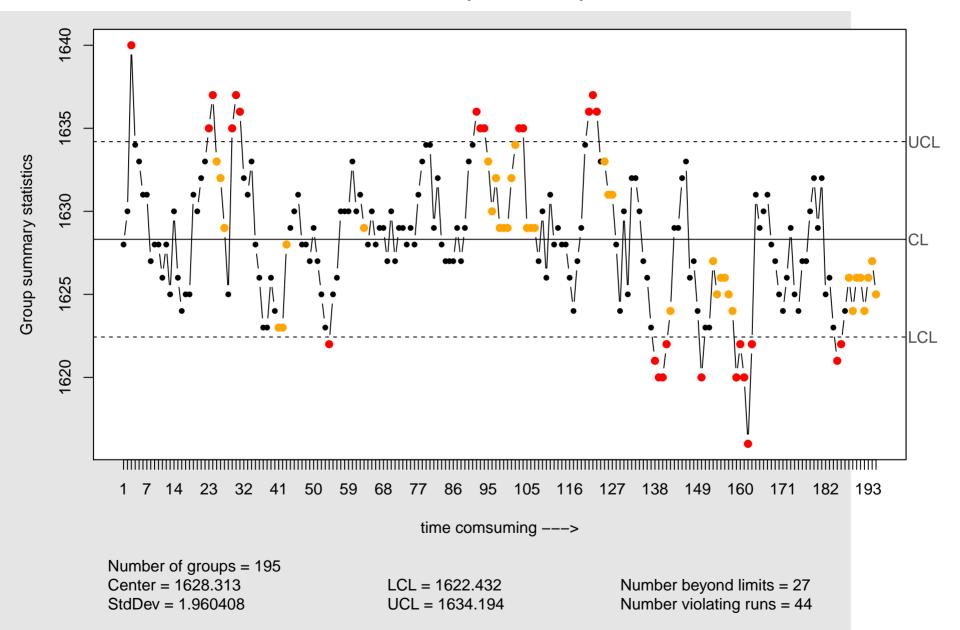


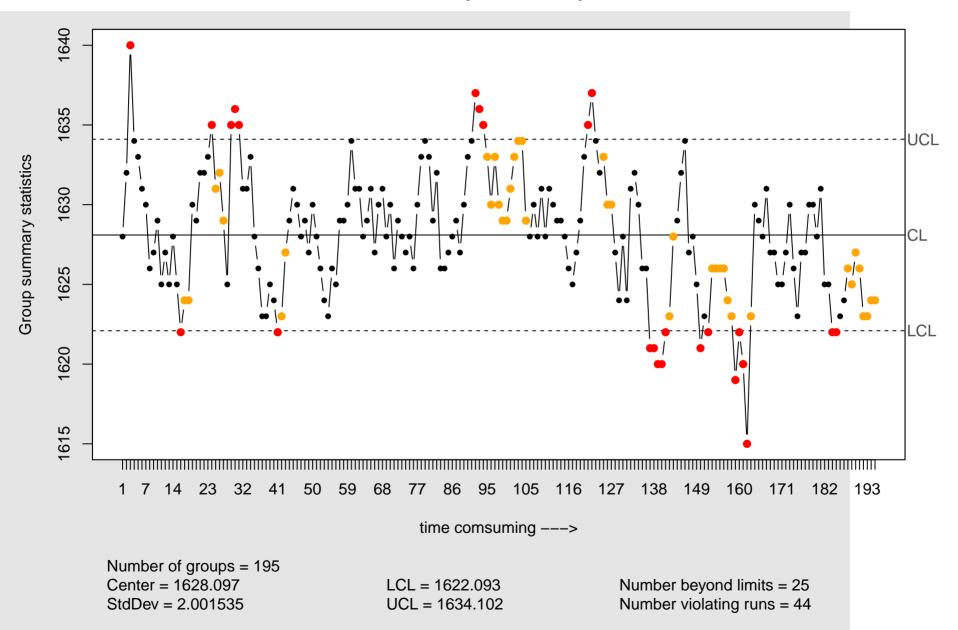


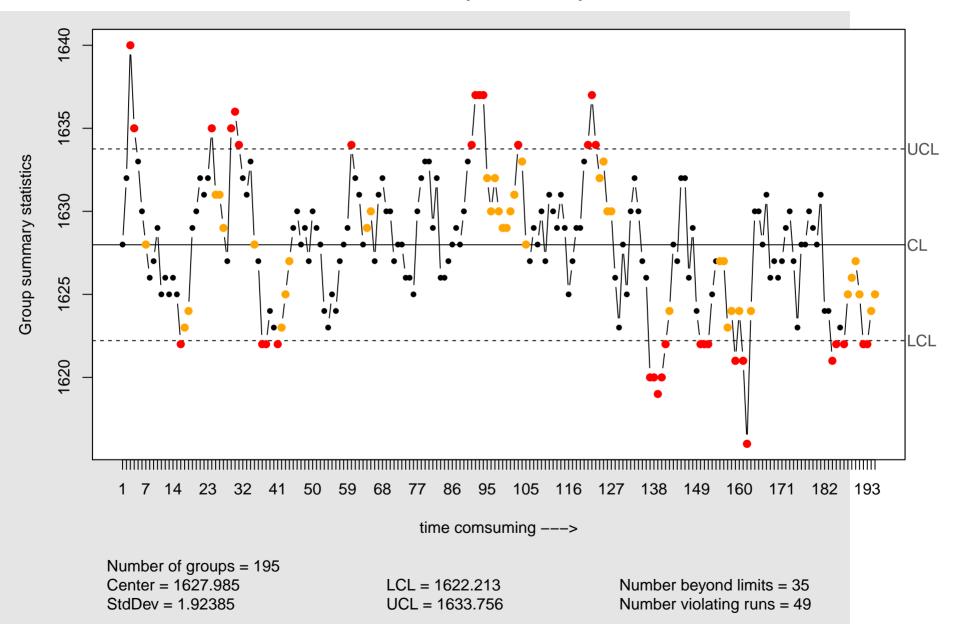


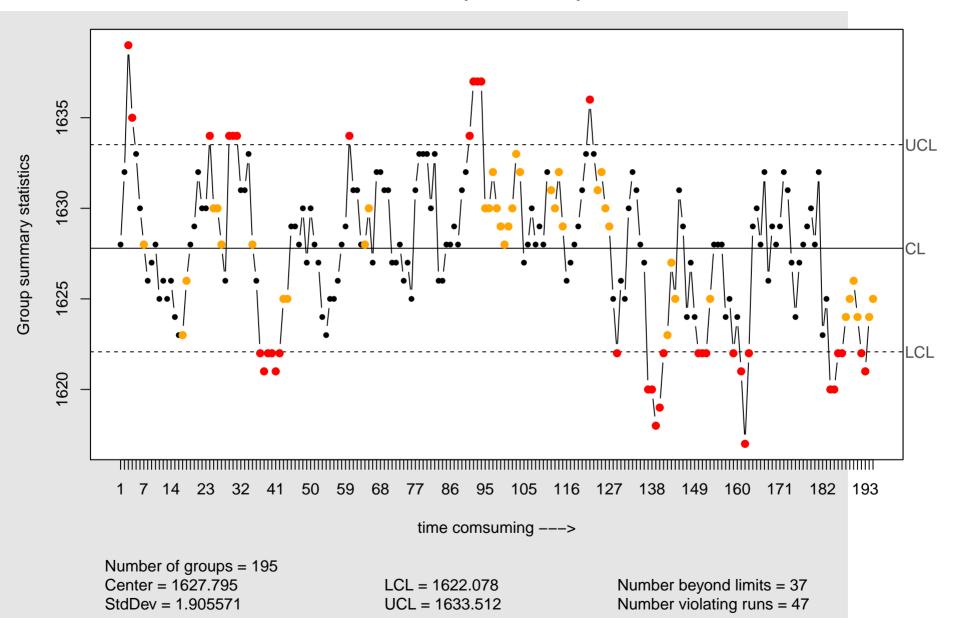


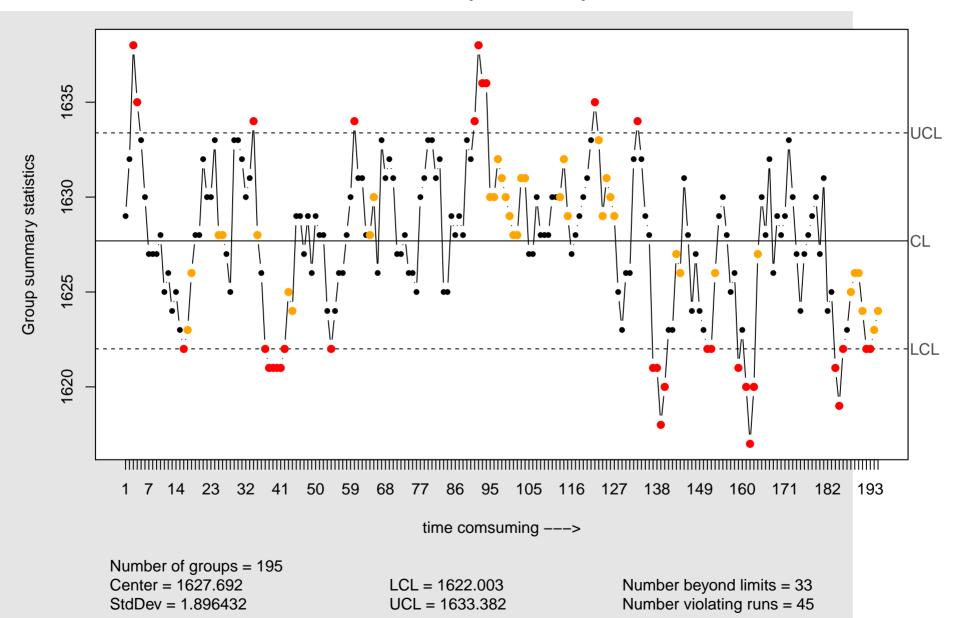


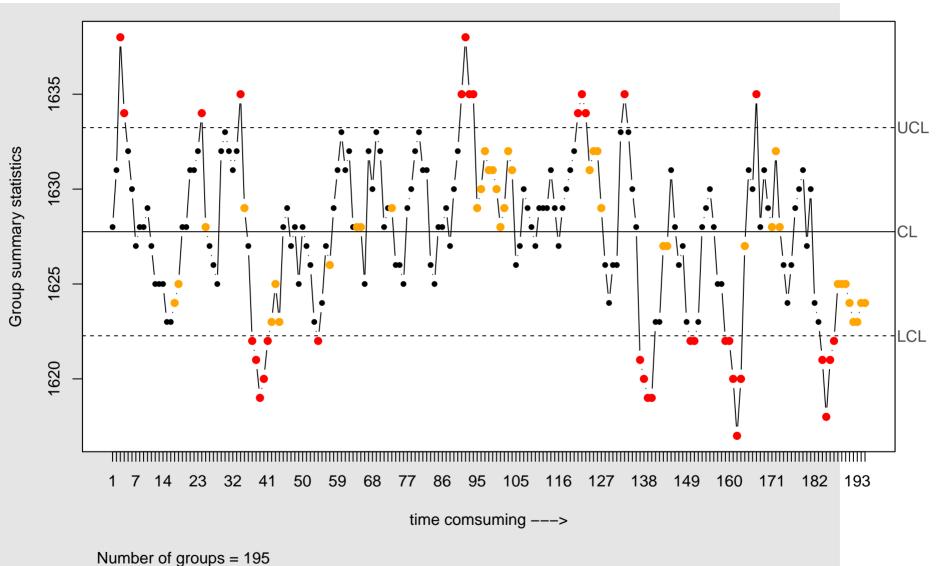






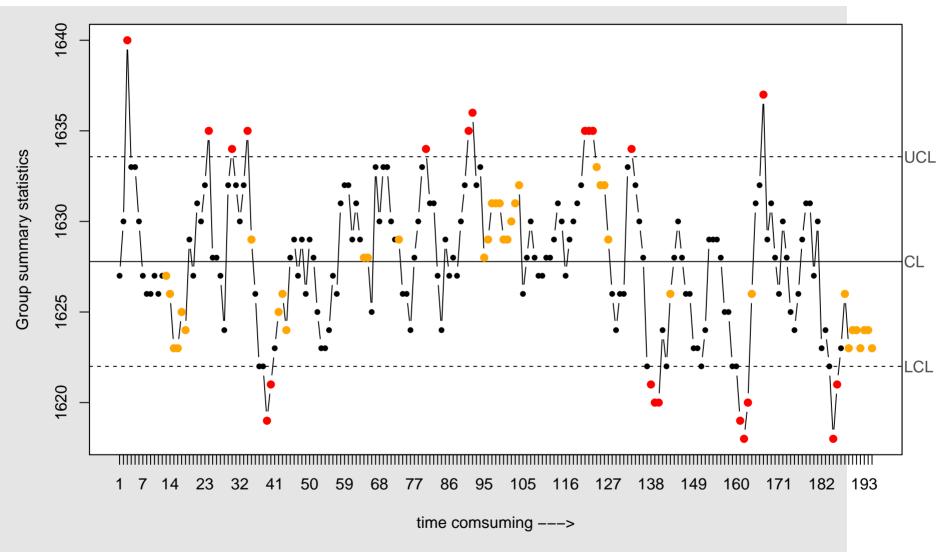






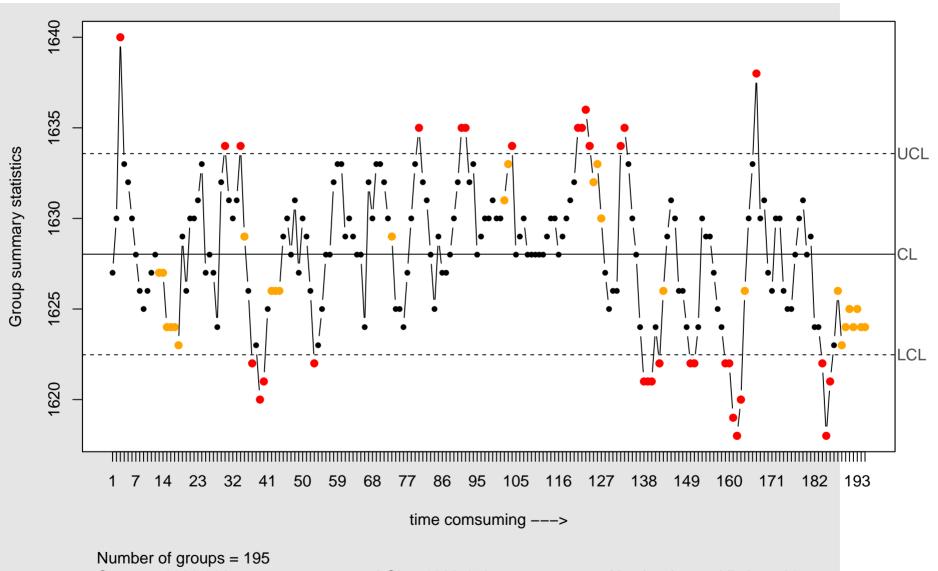
Number of groups = 195 Center = 1627.754 StdDev = 1.827886

LCL = 1622.27 UCL = 1633.238 Number beyond limits = 34 Number violating runs = 41



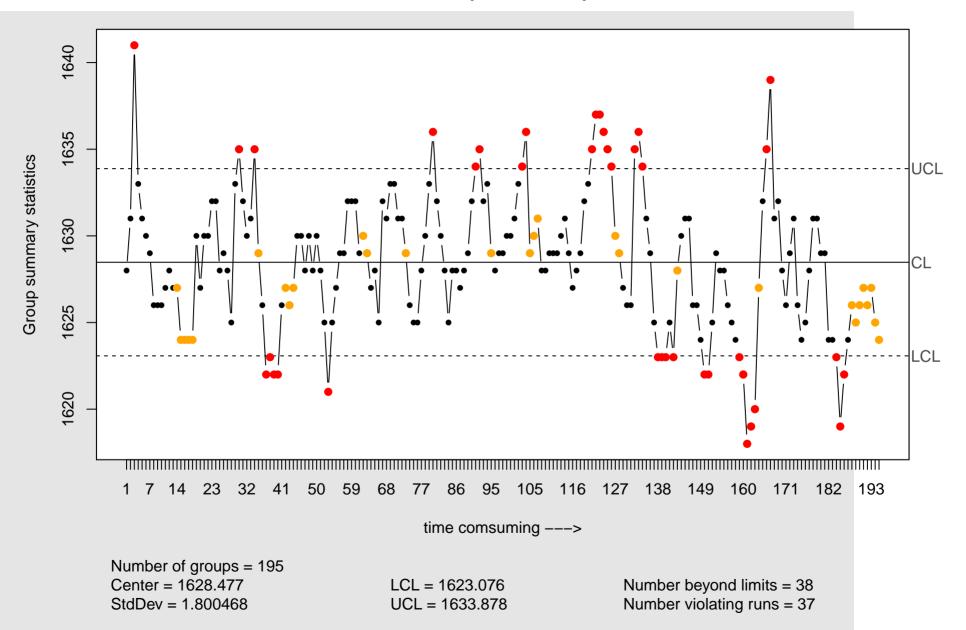
Number of groups = 195 Center = 1627.785 StdDev = 1.92842

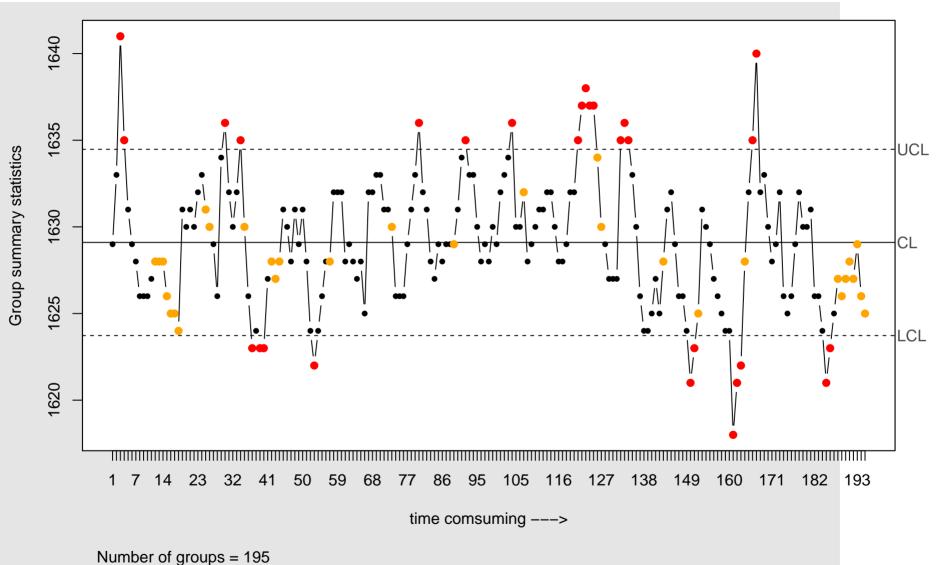
LCL = 1621.999 UCL = 1633.57 Number beyond limits = 22 Number violating runs = 39



Number of groups = 195 Center = 1628.026 StdDev = 1.850735

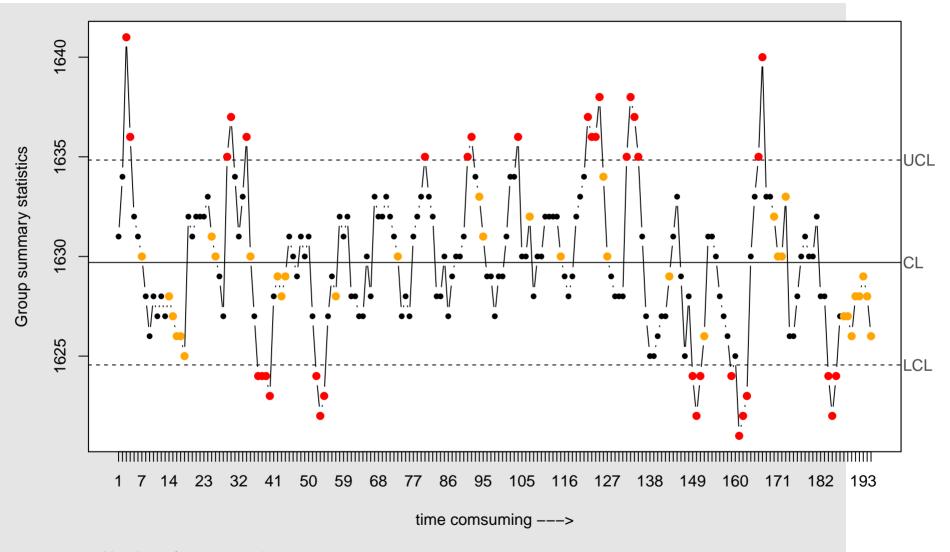
LCL = 1622.473 UCL = 1633.578 Number beyond limits = 32 Number violating runs = 32





Number of groups = 195 Center = 1629.103 StdDev = 1.791329

LCL = 1623.729 UCL = 1634.477 Number beyond limits = 28 Number violating runs = 34

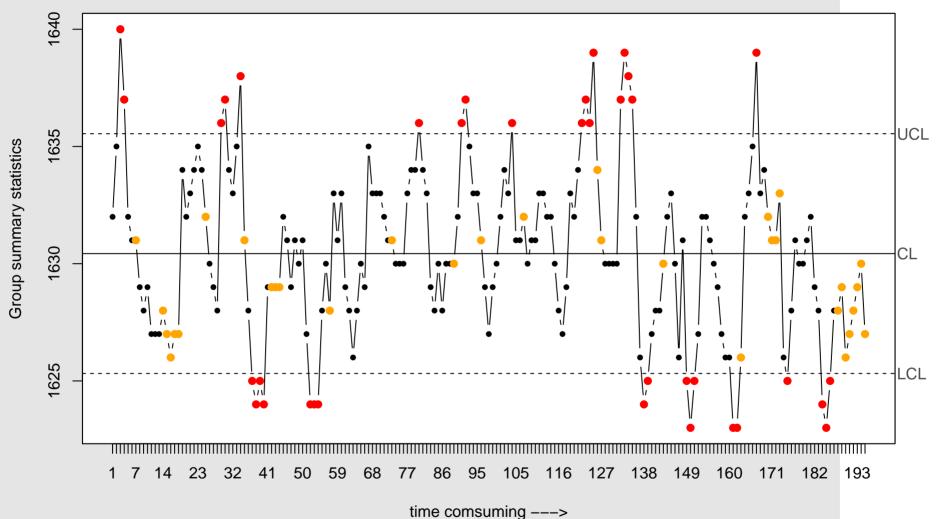


Number of groups = 195 Center = 1629.697

StdDev = 1.713643

LCL = 1624.557 UCL = 1634.838

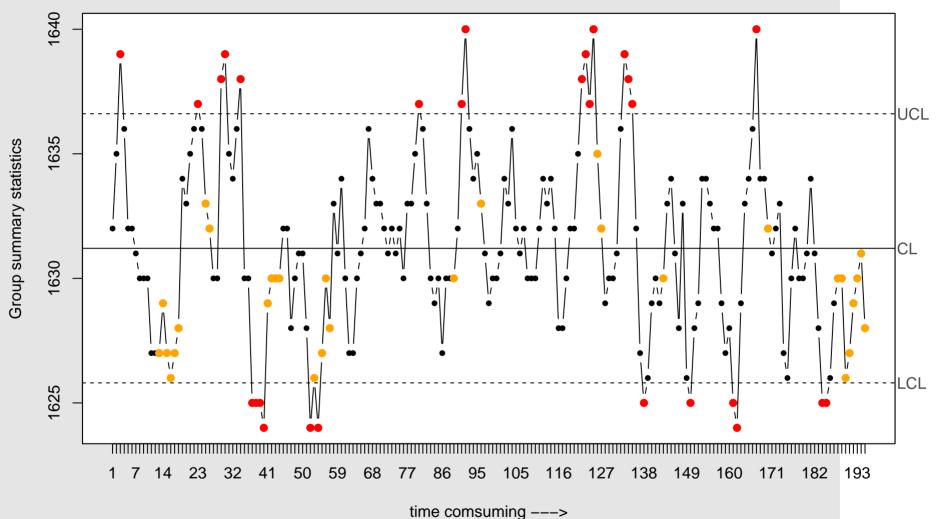
Number beyond limits = 36 Number violating runs = 37



Number of groups = 195 Center = 1630.431StdDev = 1.704504

LCL = 1625.317 UCL = 1635.544

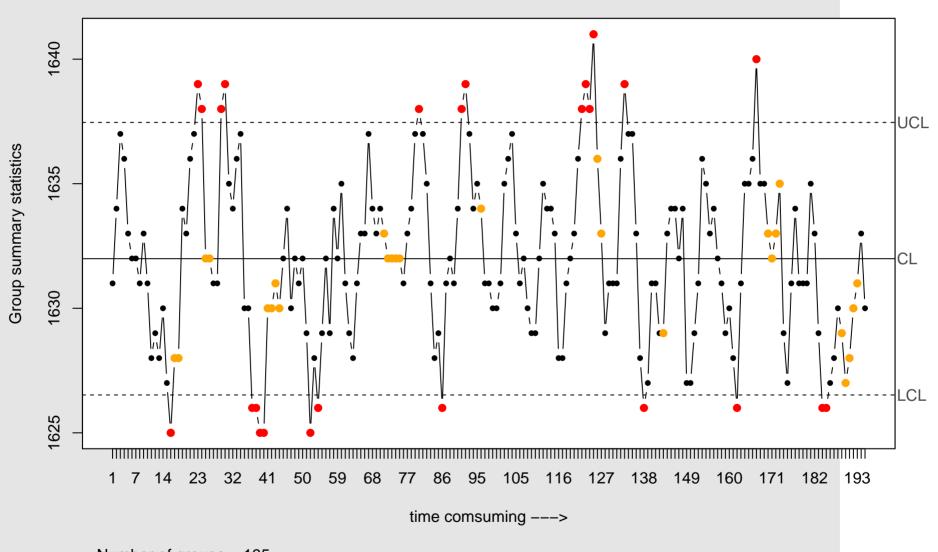
Number beyond limits = 36 Number violating runs = 34



Number of groups = 195 Center = 1631.205 StdDev = 1.800468

LCL = 1625.804 UCL = 1636.607

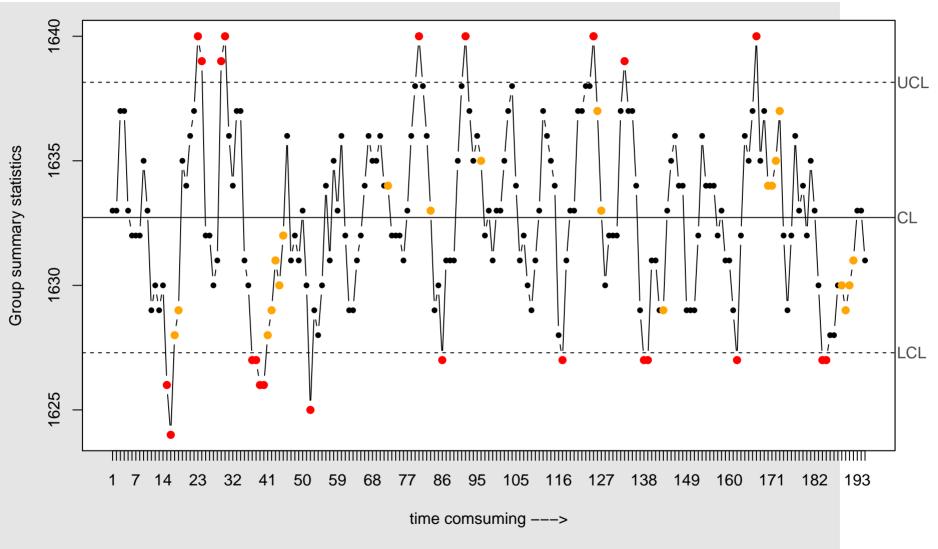
Number beyond limits = 28 Number violating runs = 32



Number of groups = 195 Center = 1631.99 StdDev = 1.823317

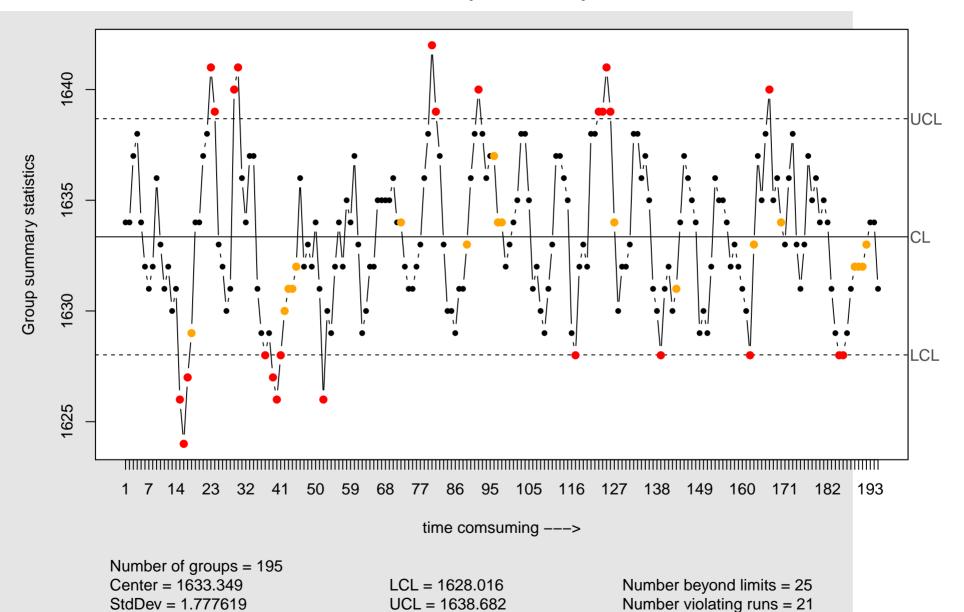
LCL = 1626.52 UCL = 1637.46

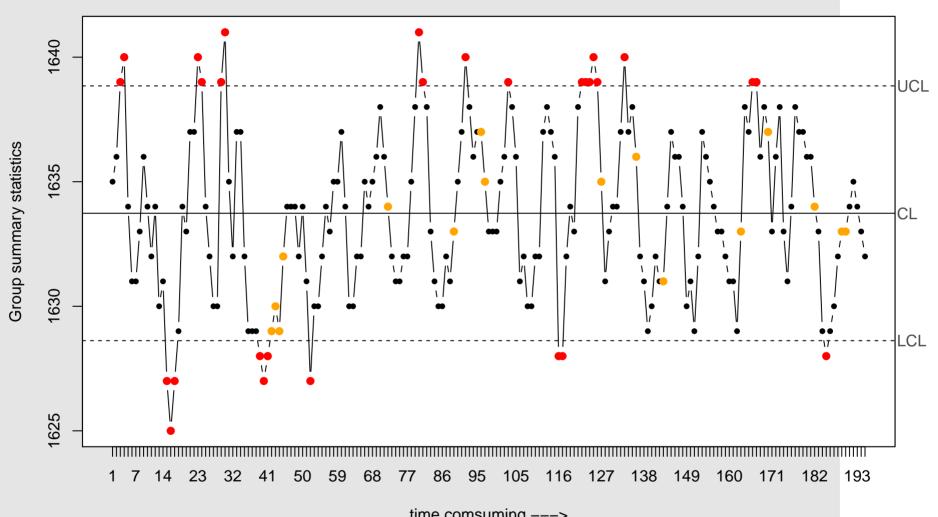
Number beyond limits = 25 Number violating runs = 28



Number of groups = 195 Center = 1632.723 StdDev = 1.809607

LCL = 1627.294 UCL = 1638.152 Number beyond limits = 23 Number violating runs = 22



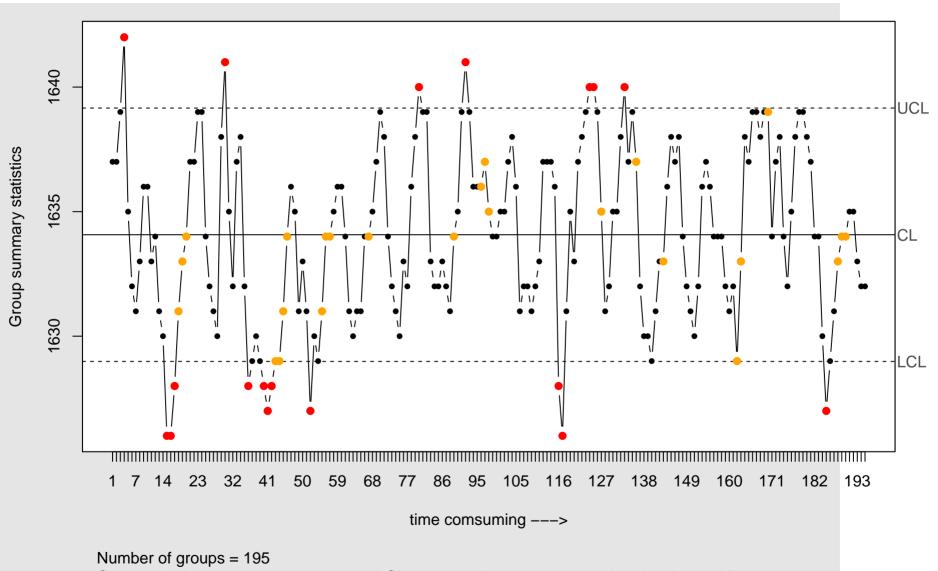


time comsuming --->

Number of groups = 195 Center = 1633.733StdDev = 1.704504

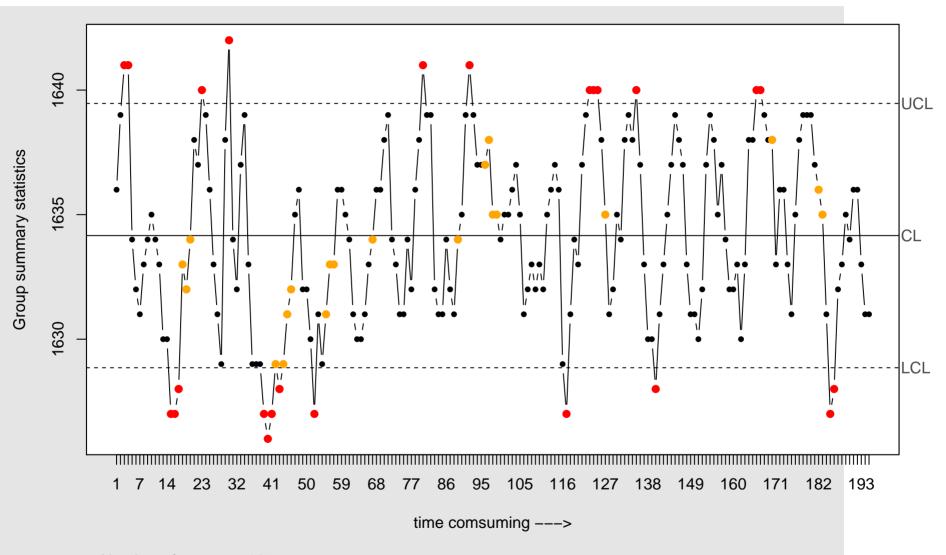
LCL = 1628.62 UCL = 1638.847

Number beyond limits = 28 Number violating runs = 17



Number of groups = 195 Center = 1634.072 StdDev = 1.695364

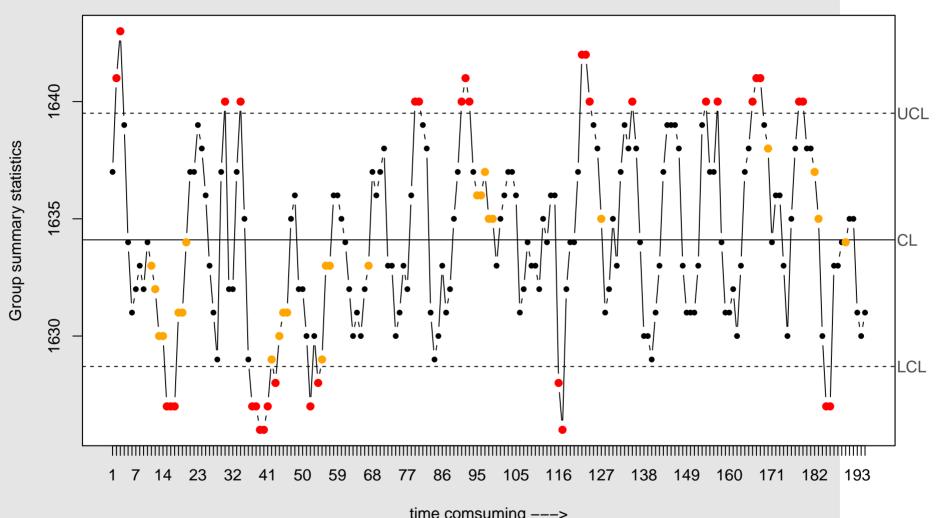
LCL = 1628.986 UCL = 1639.158 Number beyond limits = 18 Number violating runs = 27



Number of groups = 195 Center = 1634.159 StdDev = 1.76848

LCL = 1628.854 UCL = 1639.464

Number beyond limits = 24 Number violating runs = 23

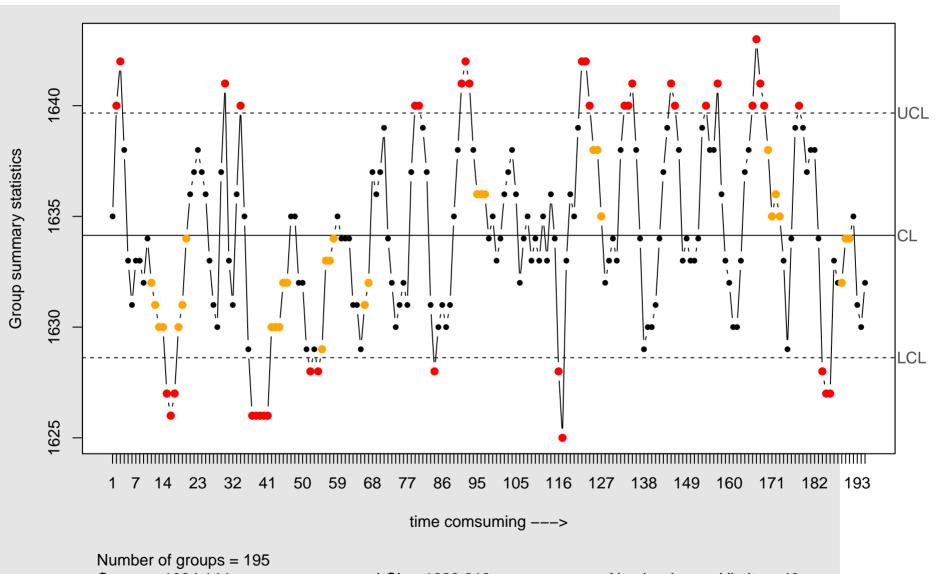


time comsuming --->

Number of groups = 195 Center = 1634.103StdDev = 1.800468

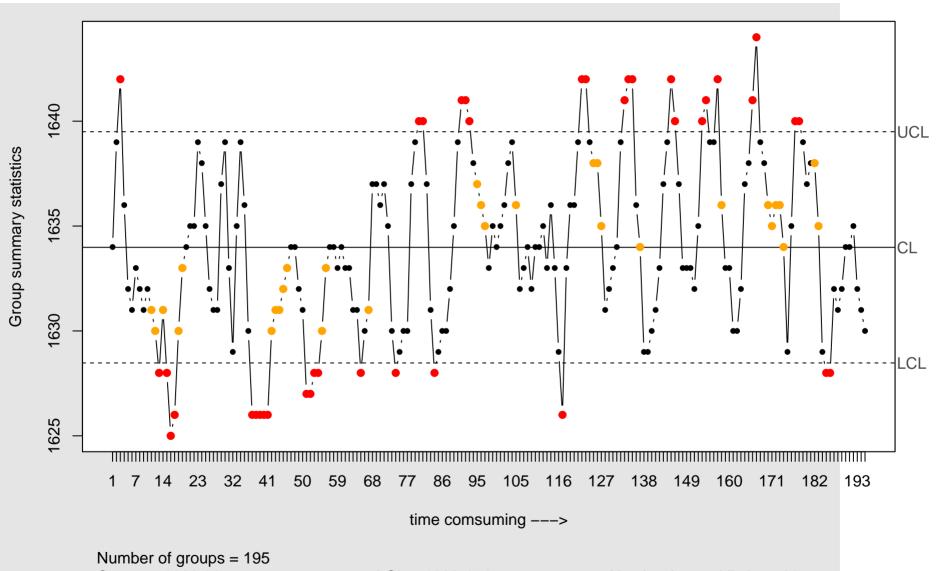
LCL = 1628.701 UCL = 1639.504

Number beyond limits = 35 Number violating runs = 29



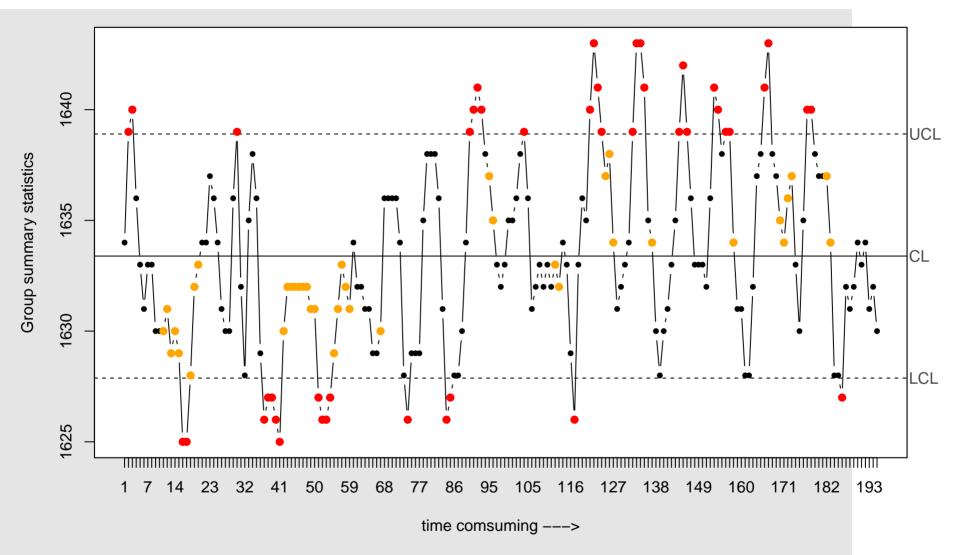
Number of groups = 195 Center = 1634.144 StdDev = 1.841595

LCL = 1628.619 UCL = 1639.668 Number beyond limits = 40 Number violating runs = 34



Number of groups = 195 Center = 1633.985 StdDev = 1.837026

LCL = 1628.474 UCL = 1639.496 Number beyond limits = 39 Number violating runs = 33



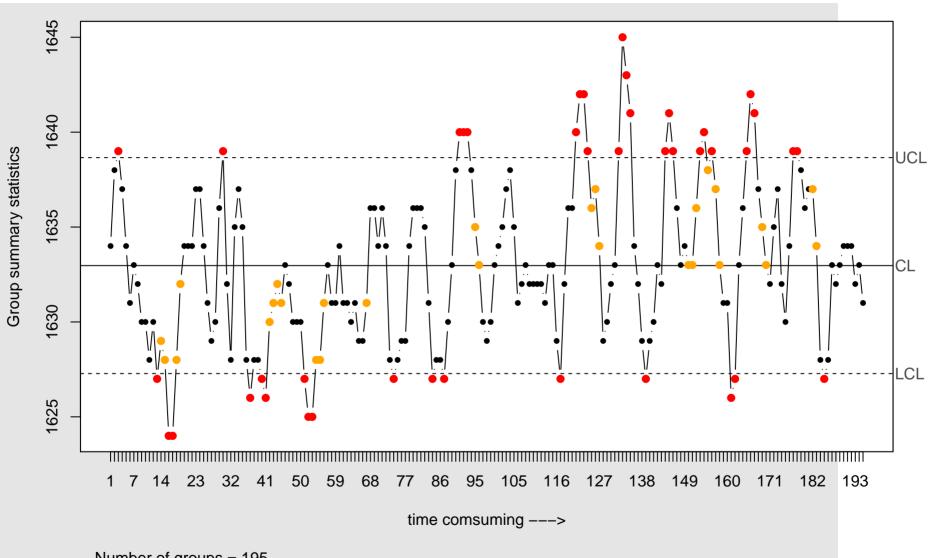
Number of groups = 195 Center = 1633.39

StdDev = 1.837026

LCL = 1627.879UCL = 1638.901

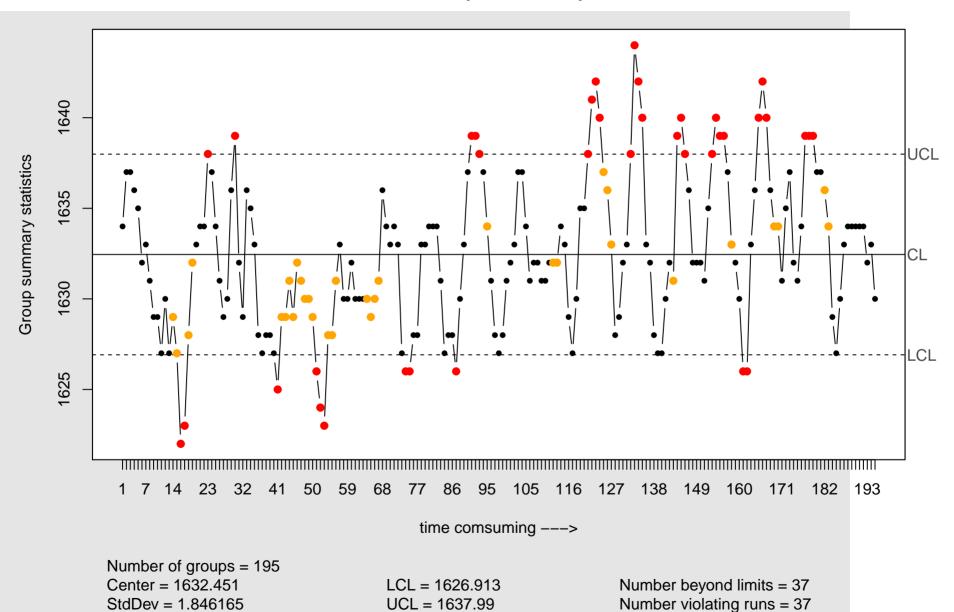
Number violating runs = 44

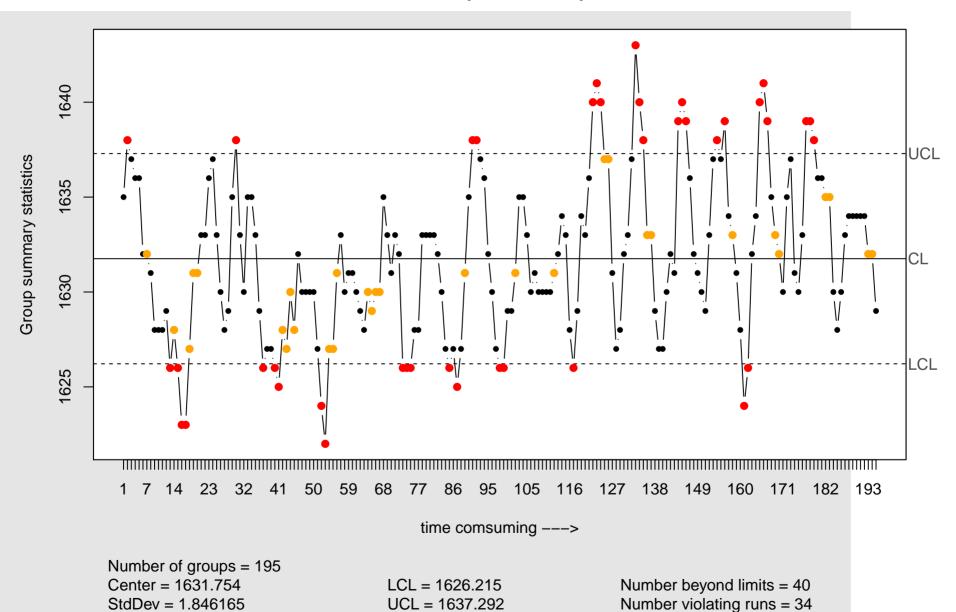
Number beyond limits = 43

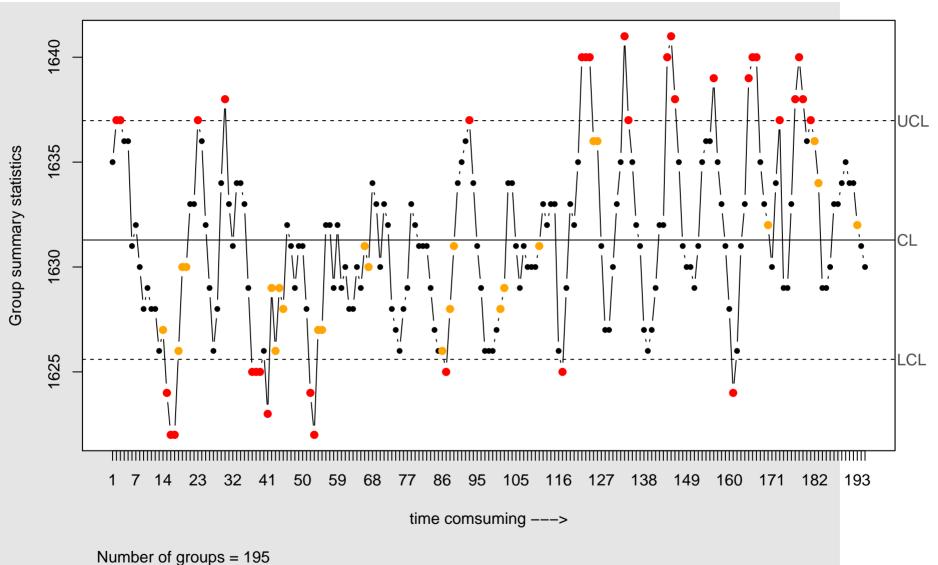


Number of groups = 195 Center = 1632.969 StdDev = 1.896432

LCL = 1627.28 UCL = 1638.659 Number beyond limits = 41 Number violating runs = 33

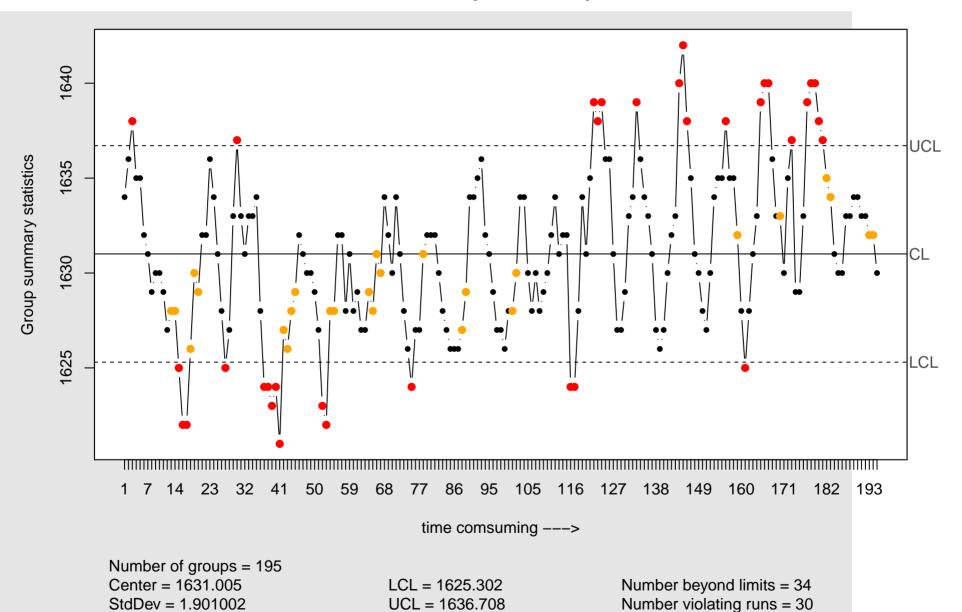


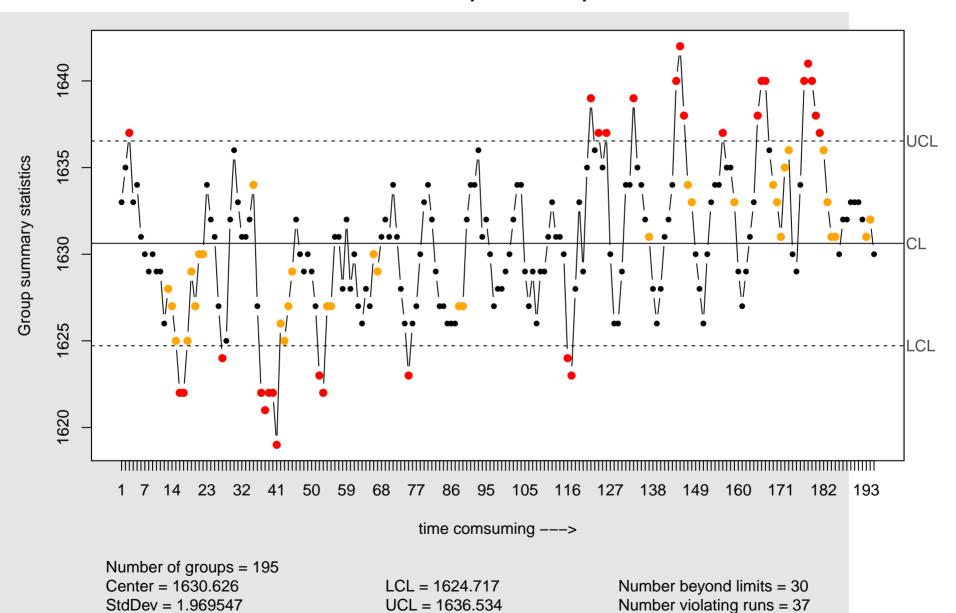


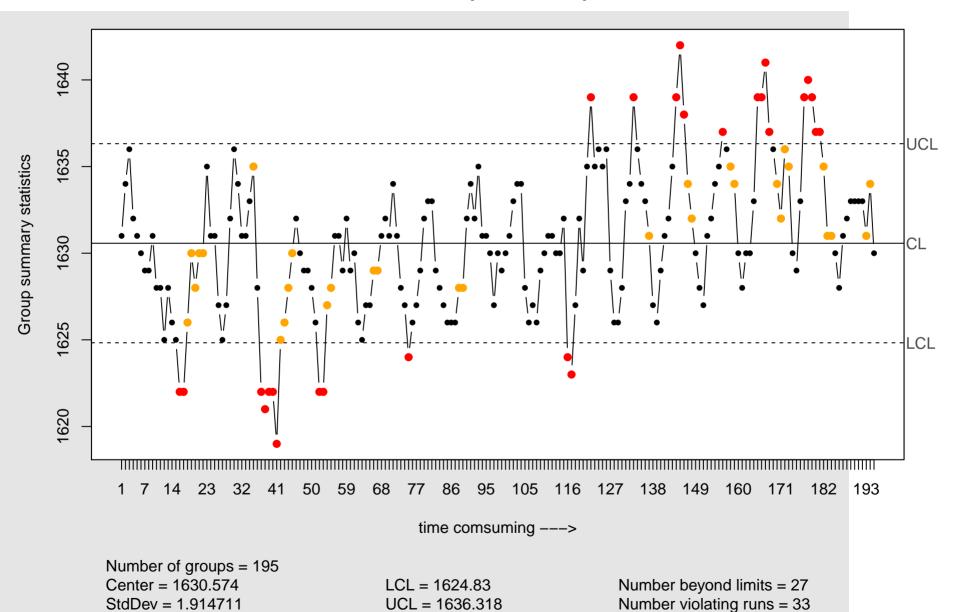


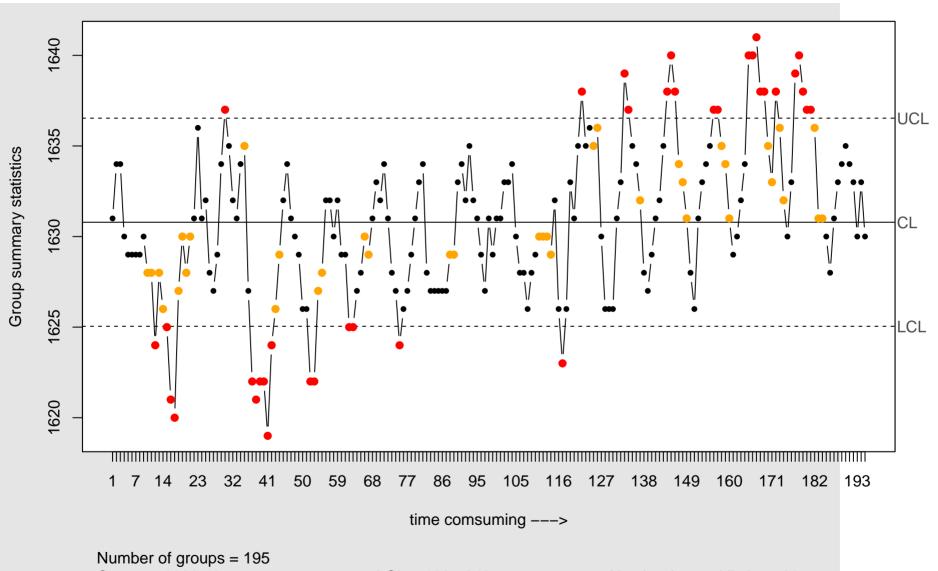
Number of groups = 195 Center = 1631.287 StdDev = 1.896432

LCL = 1625.598 UCL = 1636.976 Number beyond limits = 34 Number violating runs = 29





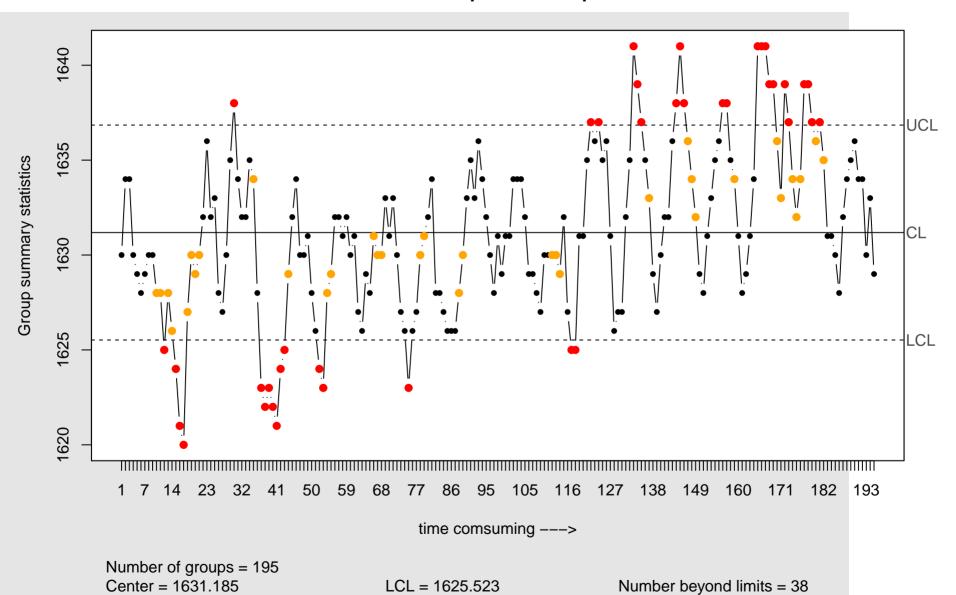




Number of groups = 195 Center = 1630.79 StdDev = 1.914711

LCL = 1625.046 UCL = 1636.534

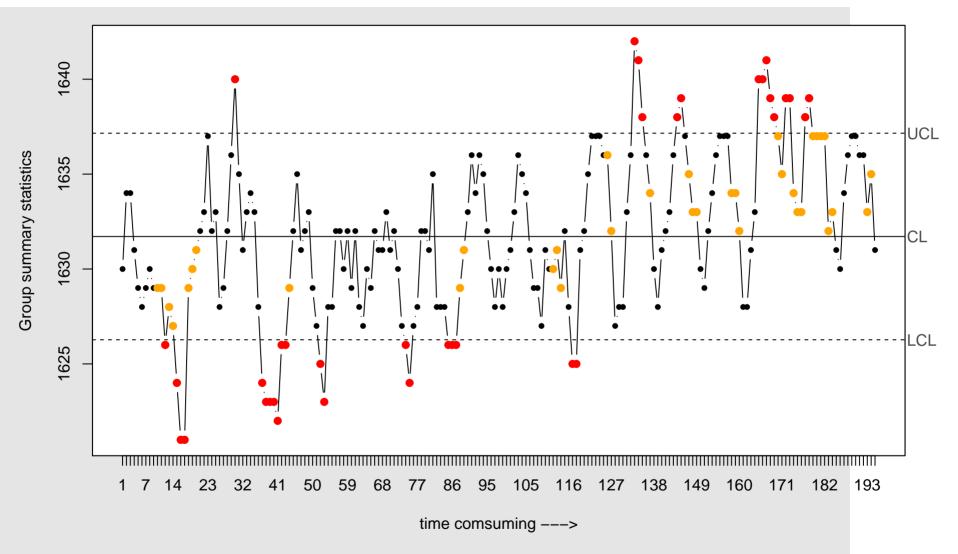
Number beyond limits = 36 Number violating runs = 44



UCL = 1636.846

Number violating runs = 47

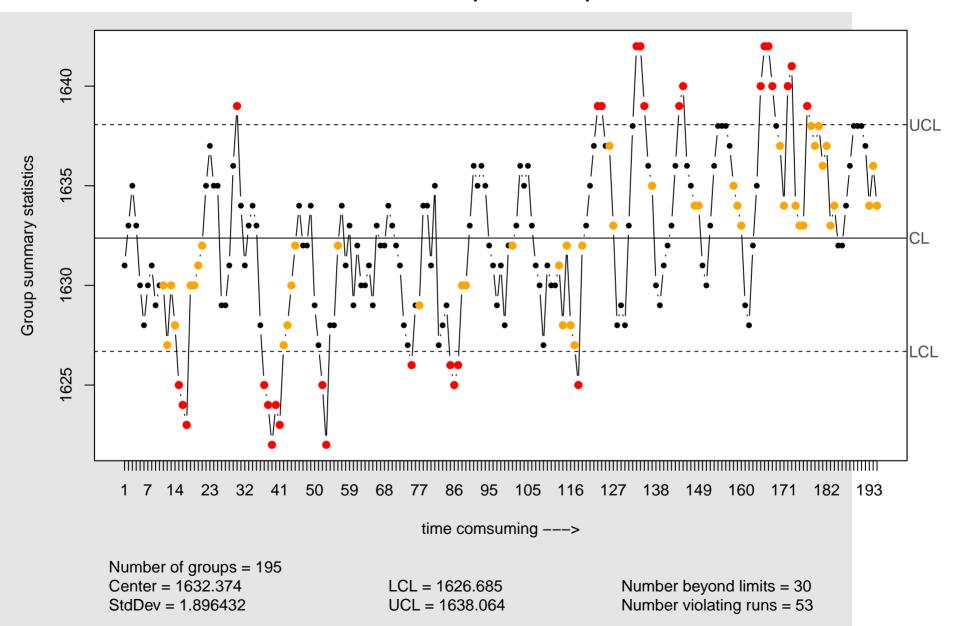
StdDev = 1.887293

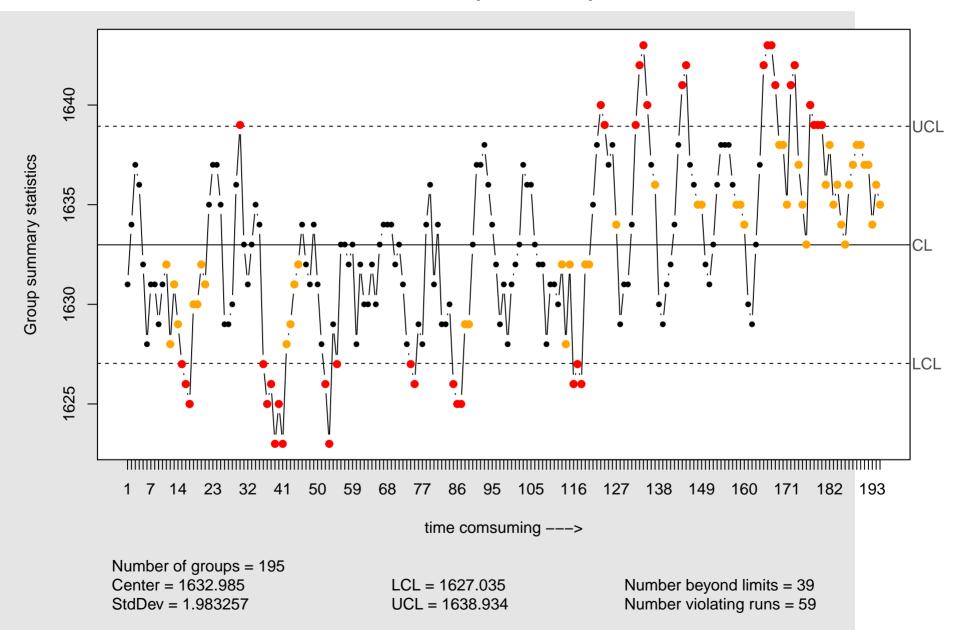


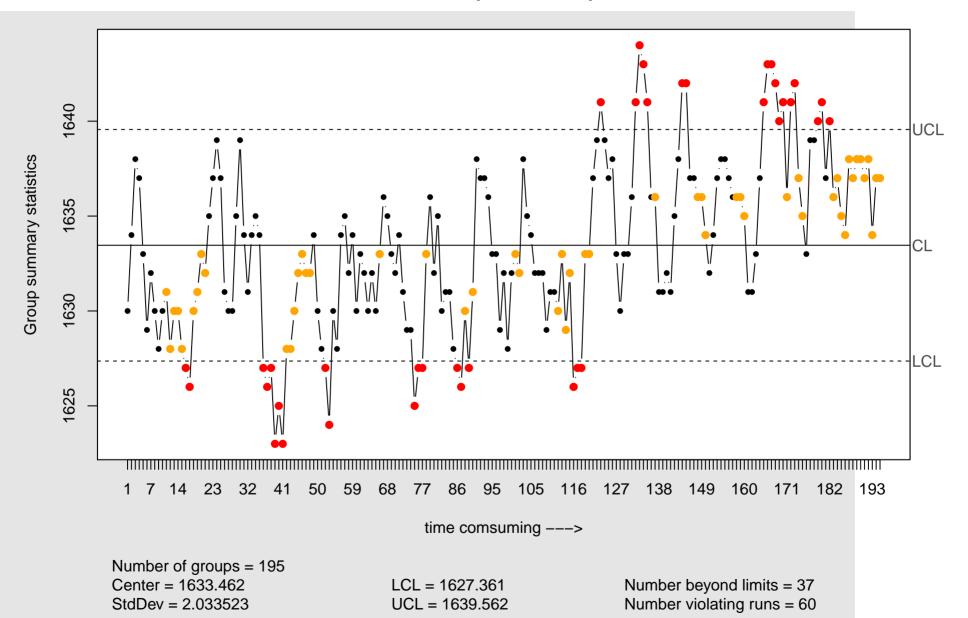
Number of groups = 195 Center = 1631.713

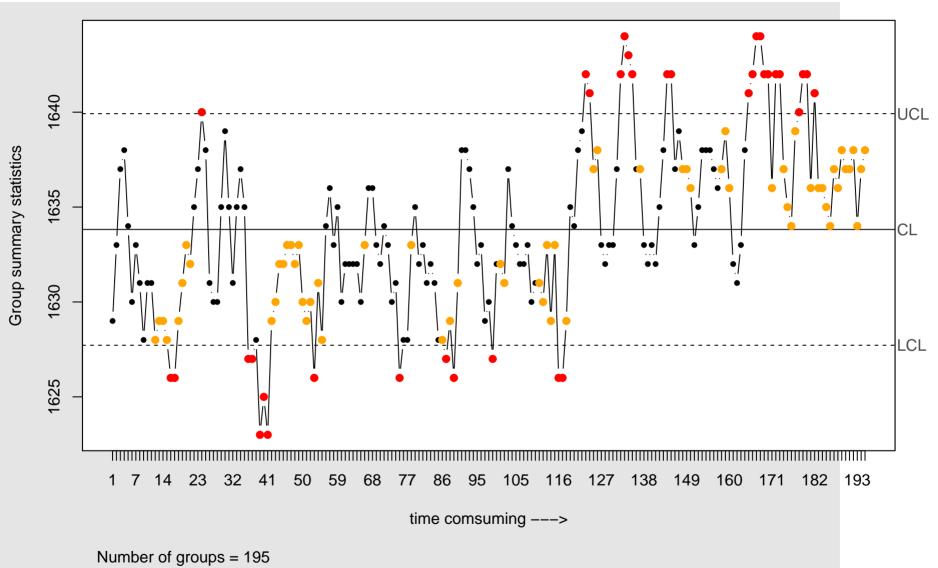
StdDev = 1.814177

LCL = 1626.27 UCL = 1637.155 Number beyond limits = 35 Number violating runs = 45





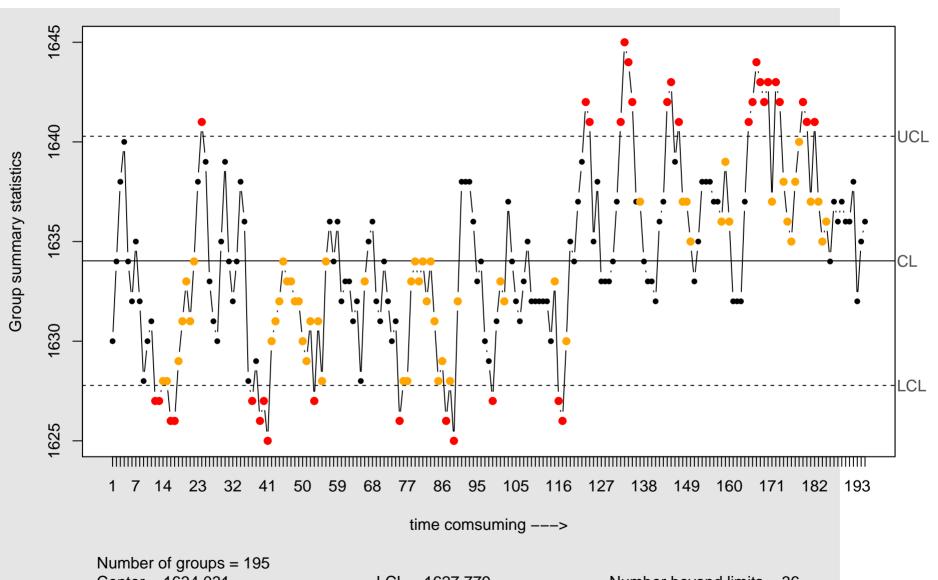




Number of groups = 195 Center = 1633.821 StdDev = 2.033523

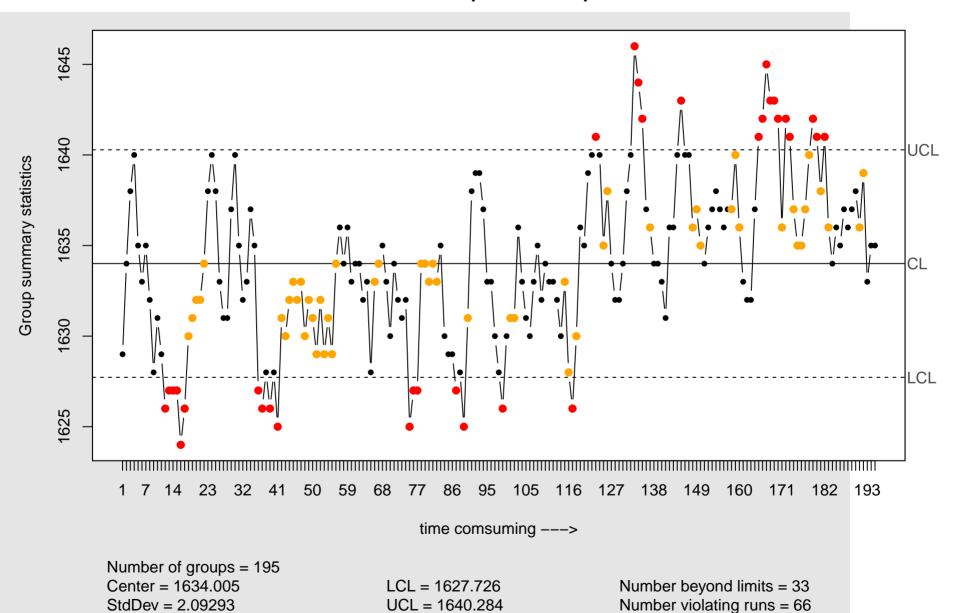
LCL = 1627.72 UCL = 1639.921

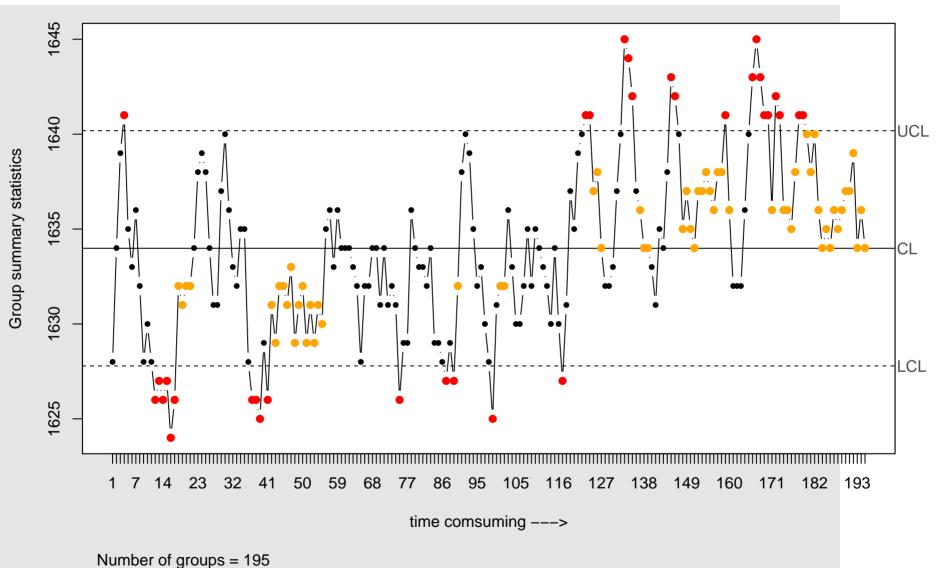
Number beyond limits = 35 Number violating runs = 76



Number of groups = 195 Center = 1634.031 StdDev = 2.08379

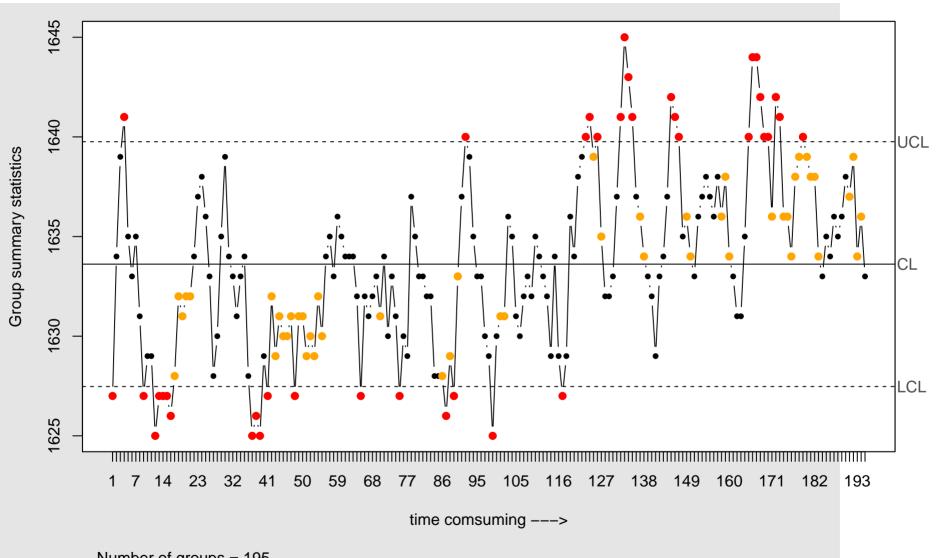
LCL = 1627.779 UCL = 1640.282 Number beyond limits = 36 Number violating runs = 70





Number of groups = 195 Center = 1633.985 StdDev = 2.065511

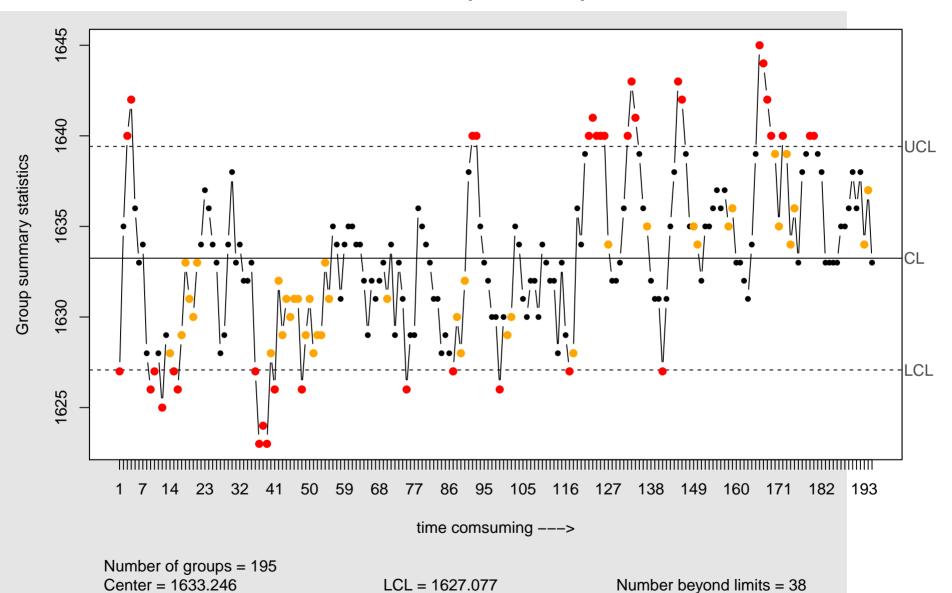
LCL = 1627.788 UCL = 1640.181 Number beyond limits = 33 Number violating runs = 70



Number of groups = 195 Center = 1633.615 StdDev = 2.047233

LCL = 1627.474 UCL = 1639.757

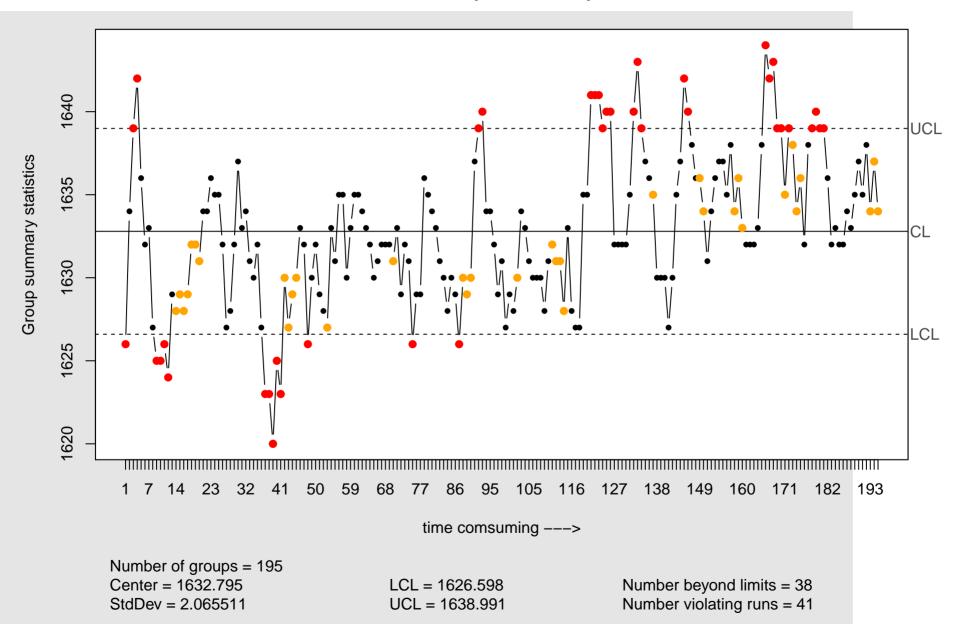
Number beyond limits = 39 Number violating runs = 58

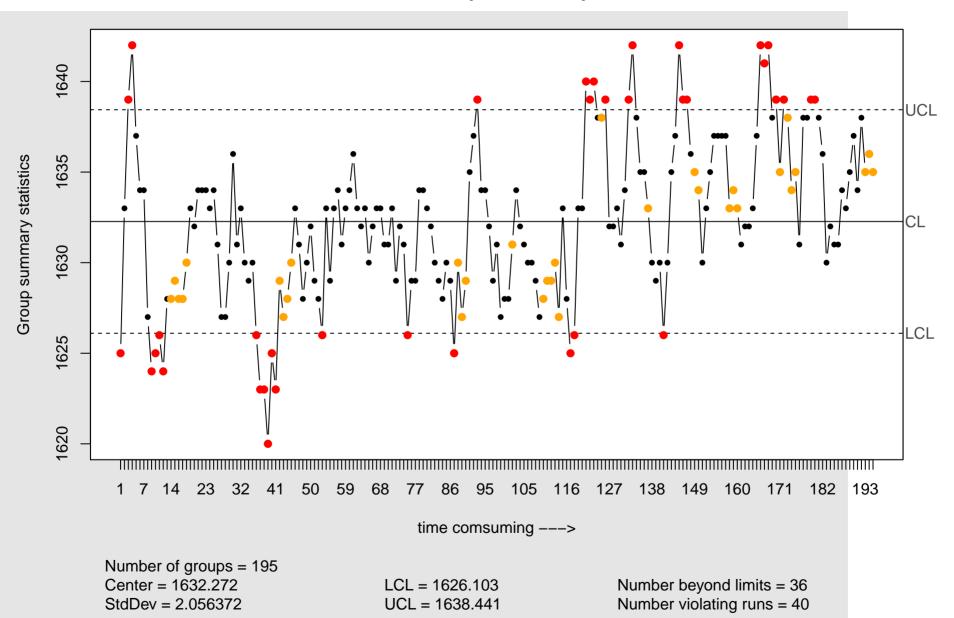


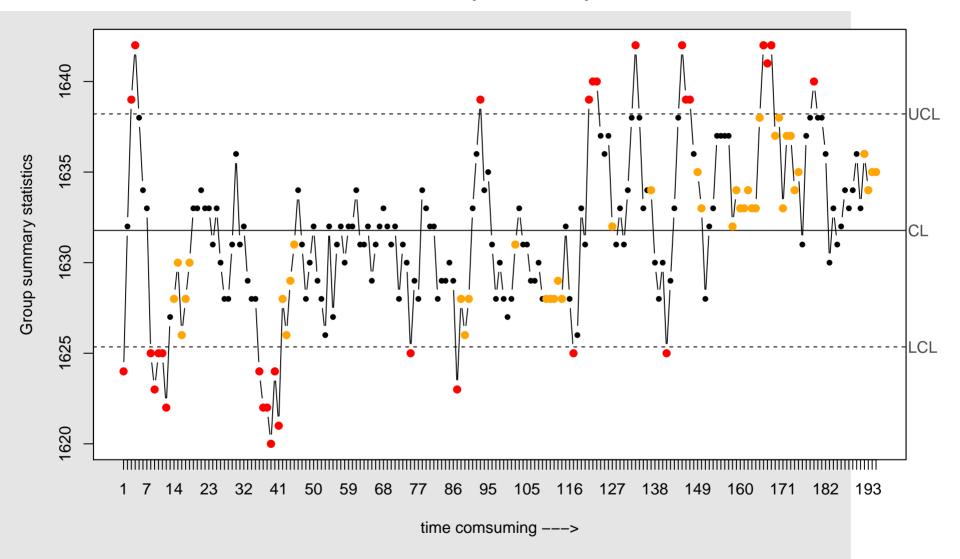
UCL = 1639.415

Number violating runs = 50

StdDev = 2.056372



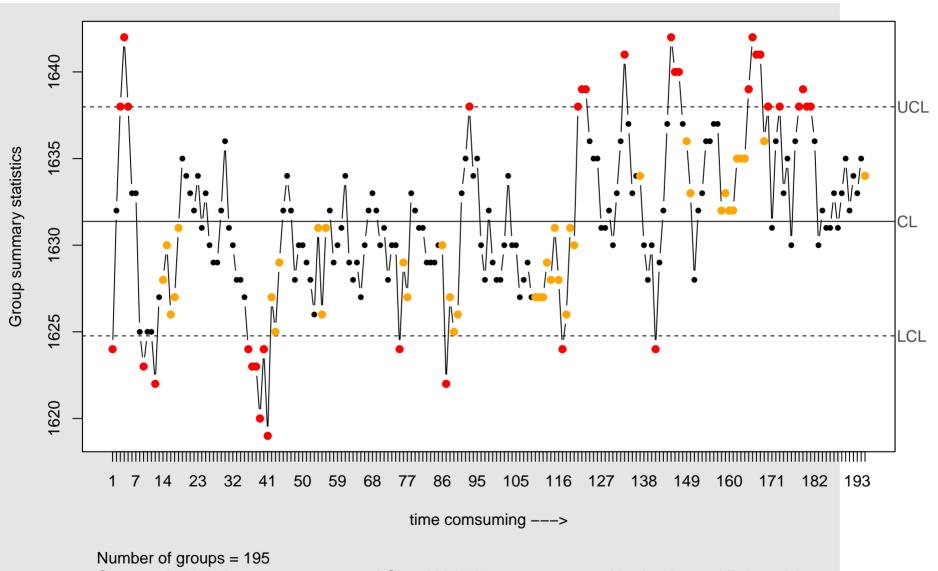




Number of groups = 195 Center = 1631.779 StdDev = 2.143197

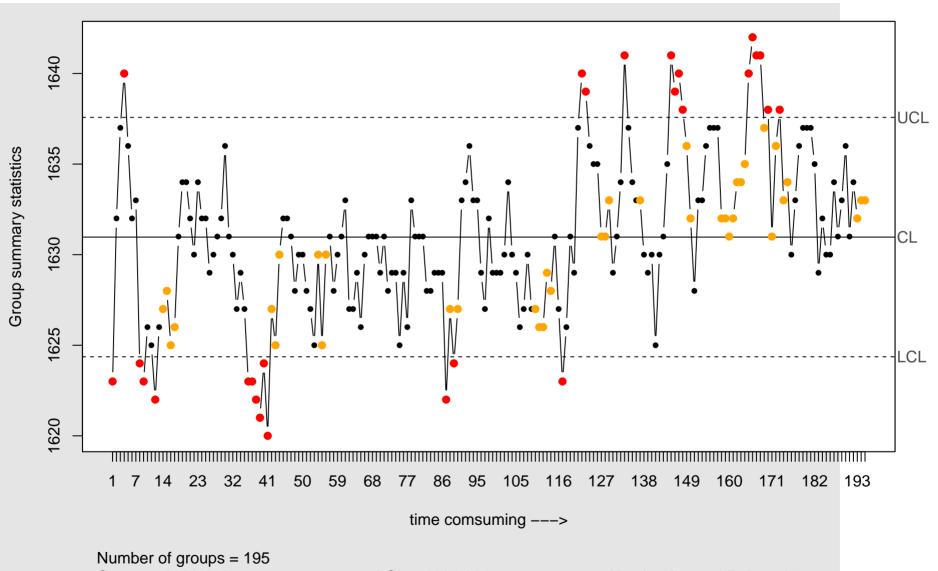
LCL = 1625.35 UCL = 1638.209

Number beyond limits = 30 Number violating runs = 47



Number of groups = 195 Center = 1631.374 StdDev = 2.202603

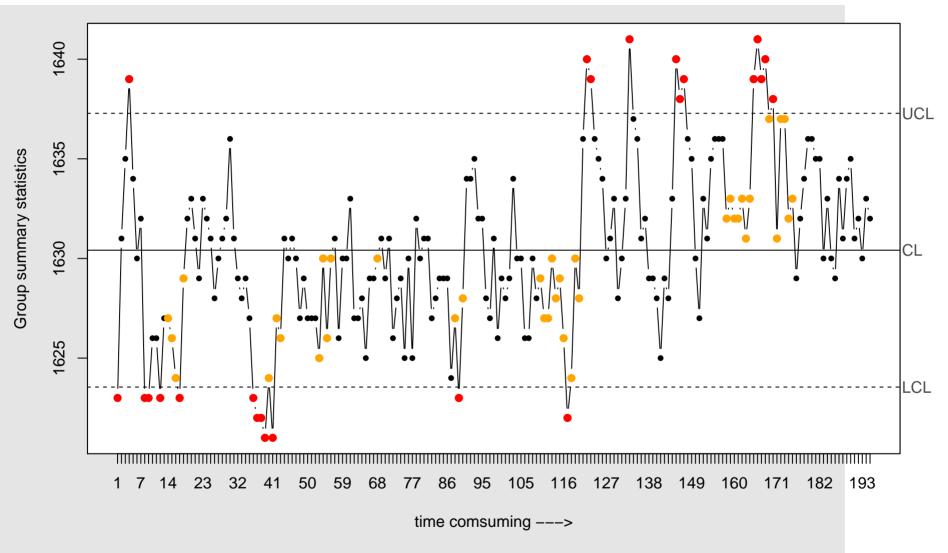
LCL = 1624.767 UCL = 1637.982 Number beyond limits = 34 Number violating runs = 51



Number of groups = 195 Center = 1630.969 StdDev = 2.202603

LCL = 1624.361 UCL = 1637.577

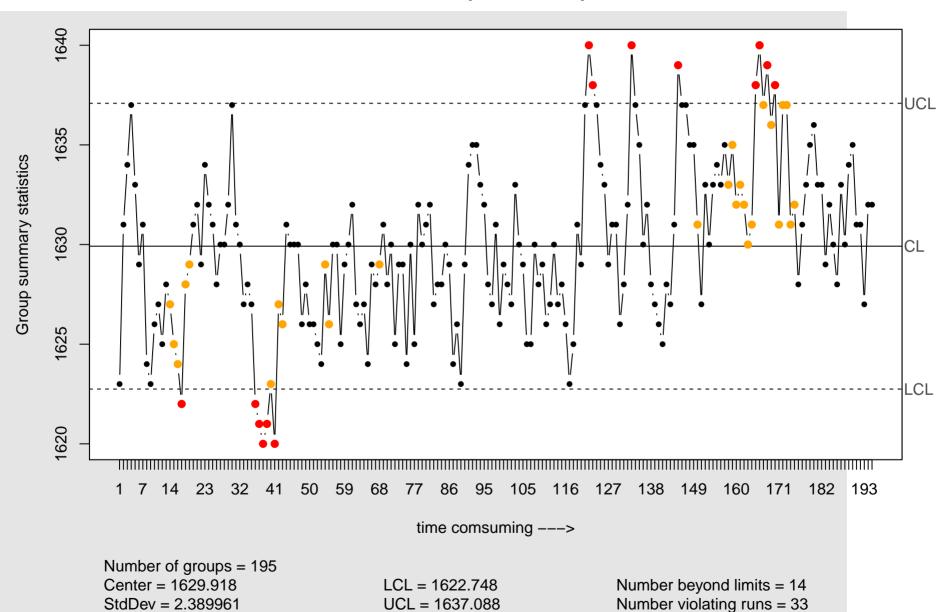
Number beyond limits = 27 Number violating runs = 49

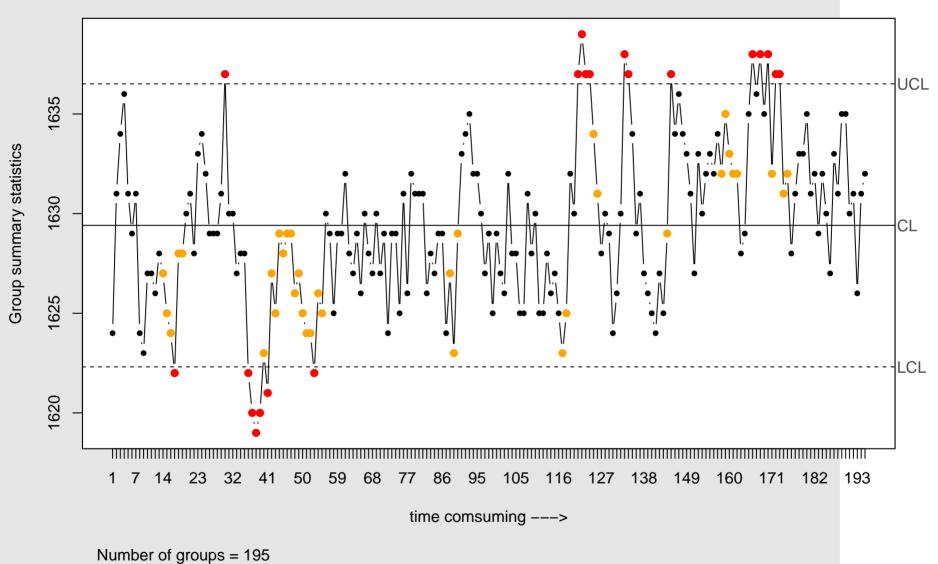


Number of groups = 195 Center = 1630.415

StdDev = 2.289428

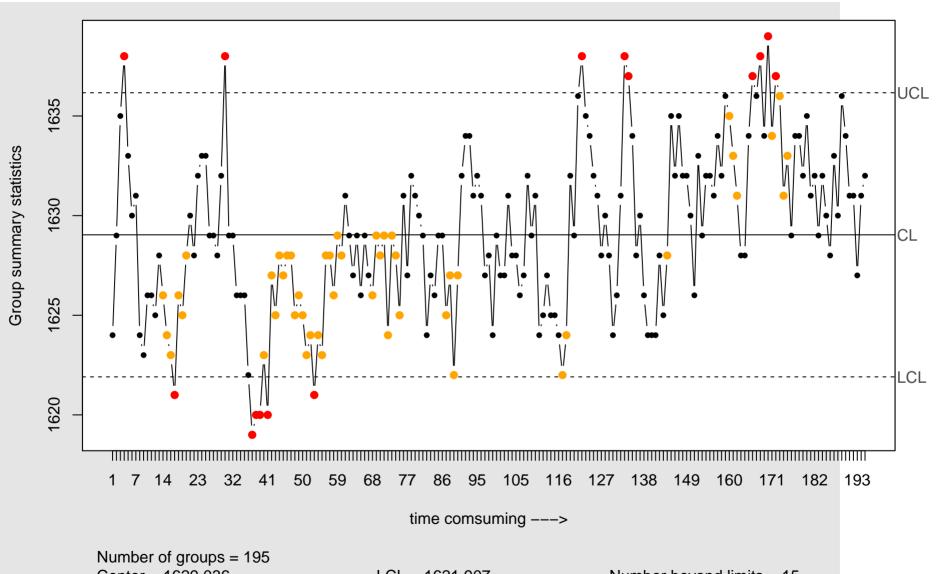
LCL = 1623.547 UCL = 1637.284 Number beyond limits = 24 Number violating runs = 48





Number of groups = 195 Center = 1629.41 StdDev = 2.367113

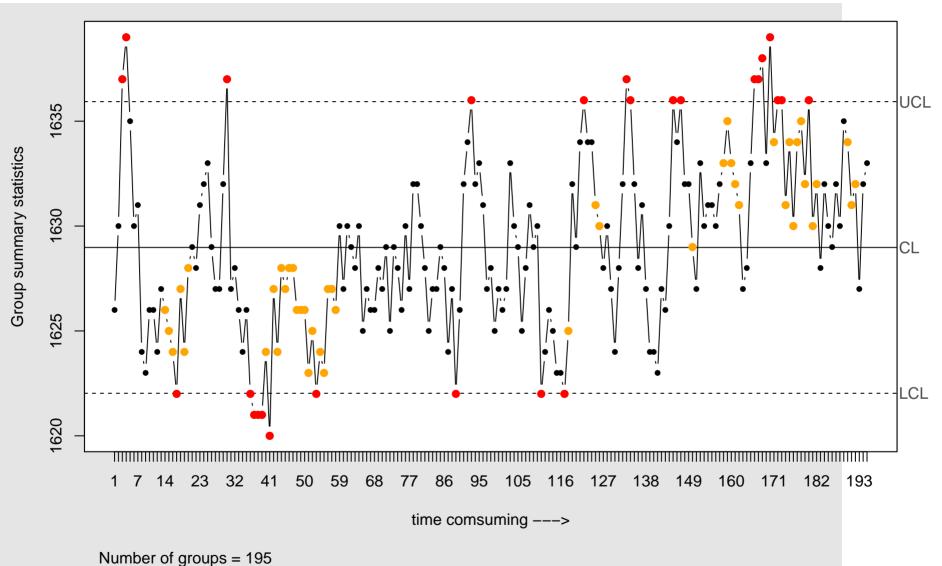
LCL = 1622.309 UCL = 1636.512 Number beyond limits = 20 Number violating runs = 41



Number of groups = 195 Center = 1629.036 StdDev = 2.376252

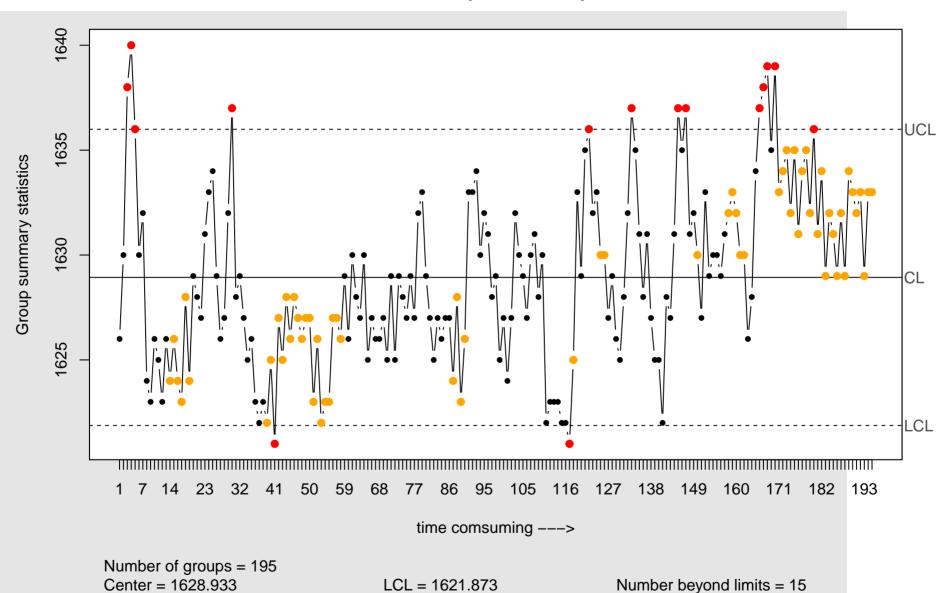
LCL = 1621.907 UCL = 1636.165

Number beyond limits = 15 Number violating runs = 54



Number of groups = 195 Center = 1628.979 StdDev = 2.316846

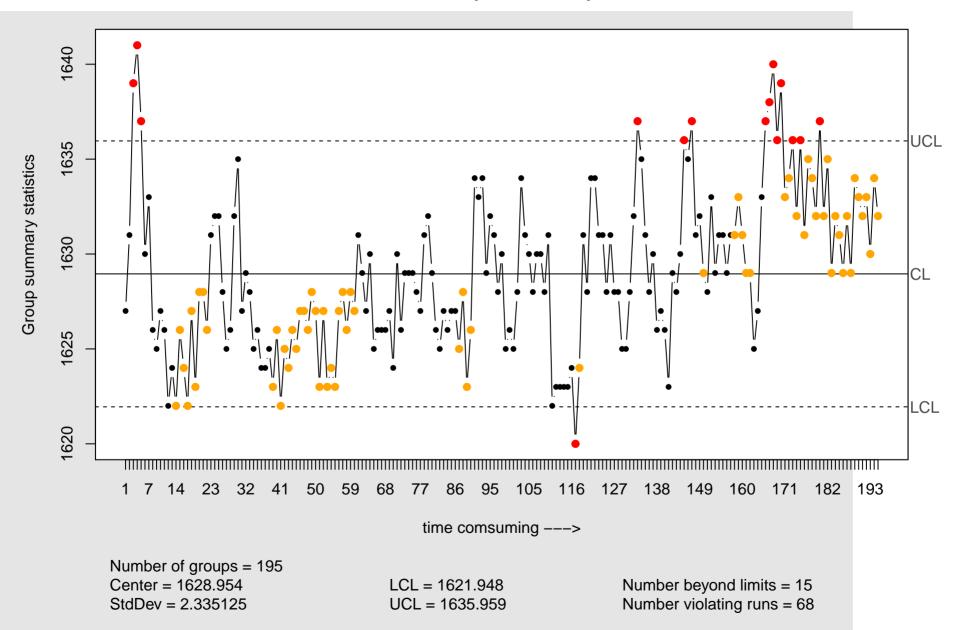
LCL = 1622.029 UCL = 1635.93 Number beyond limits = 26 Number violating runs = 54

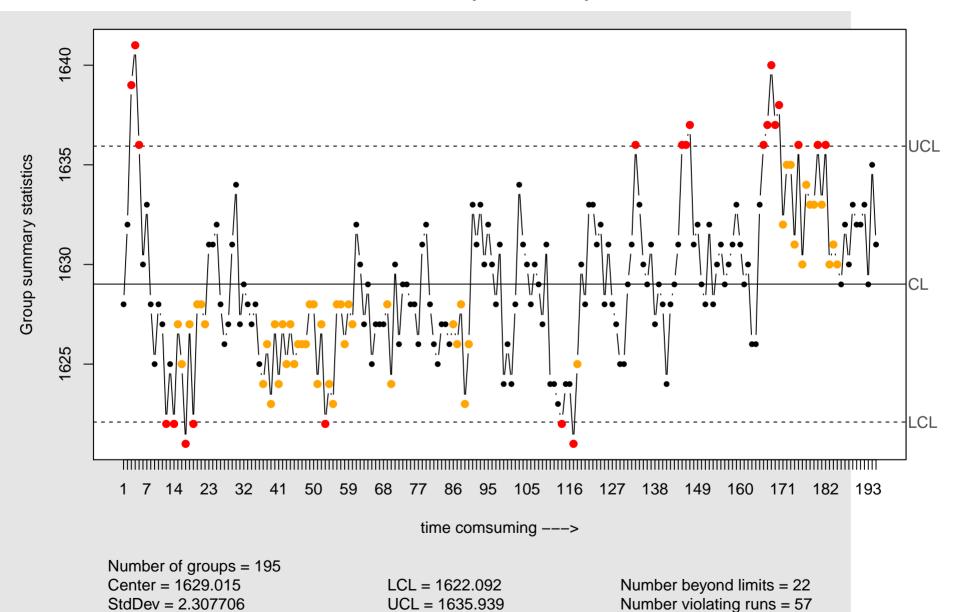


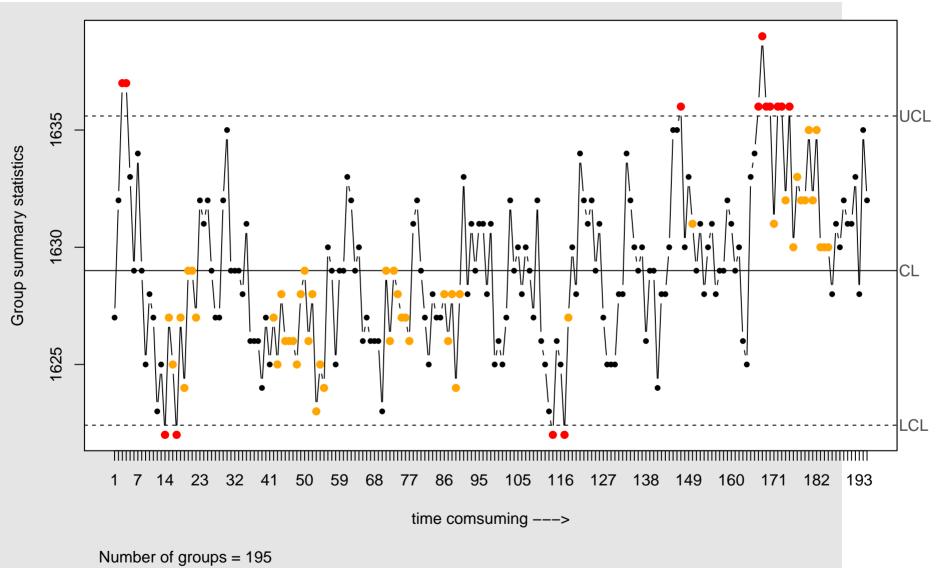
UCL = 1635.994

Number violating runs = 65

StdDev = 2.353404

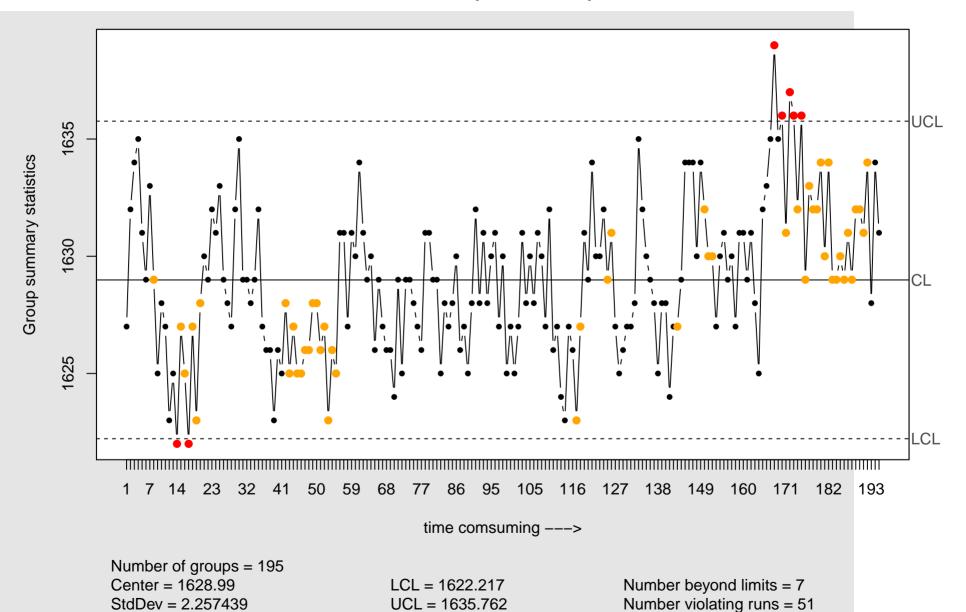


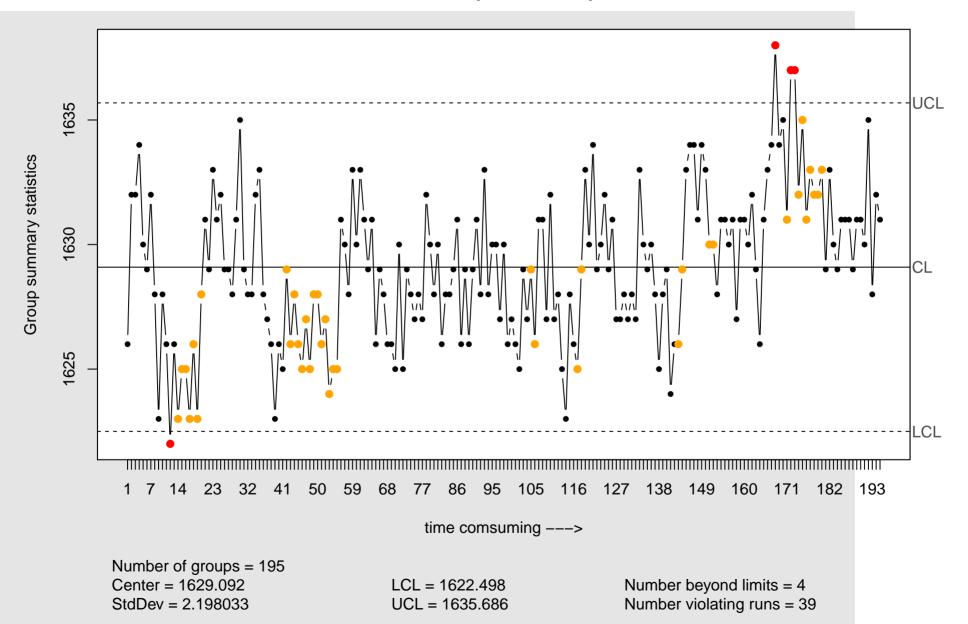


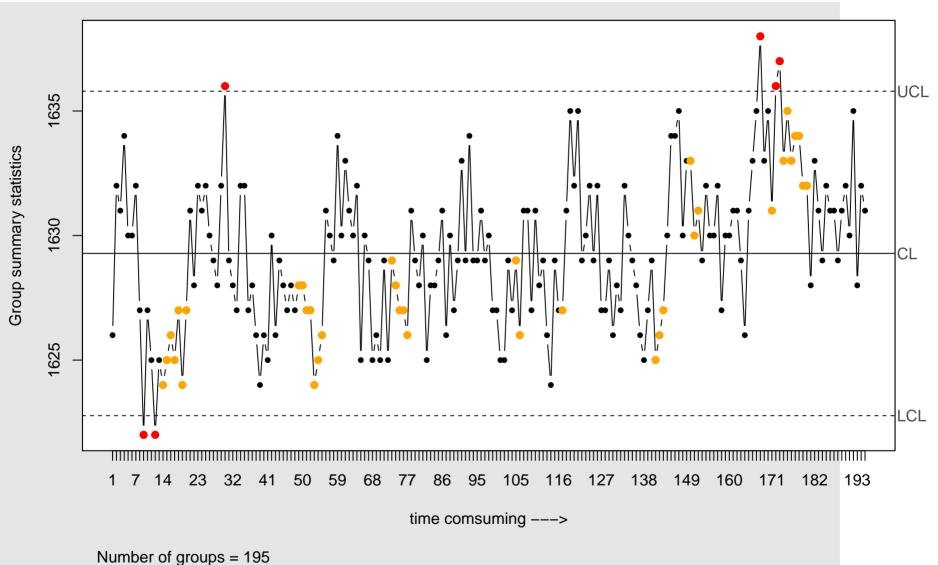


Number of groups = 195 Center = 1629.005 StdDev = 2.198033

LCL = 1622.411 UCL = 1635.599 Number beyond limits = 14 Number violating runs = 53



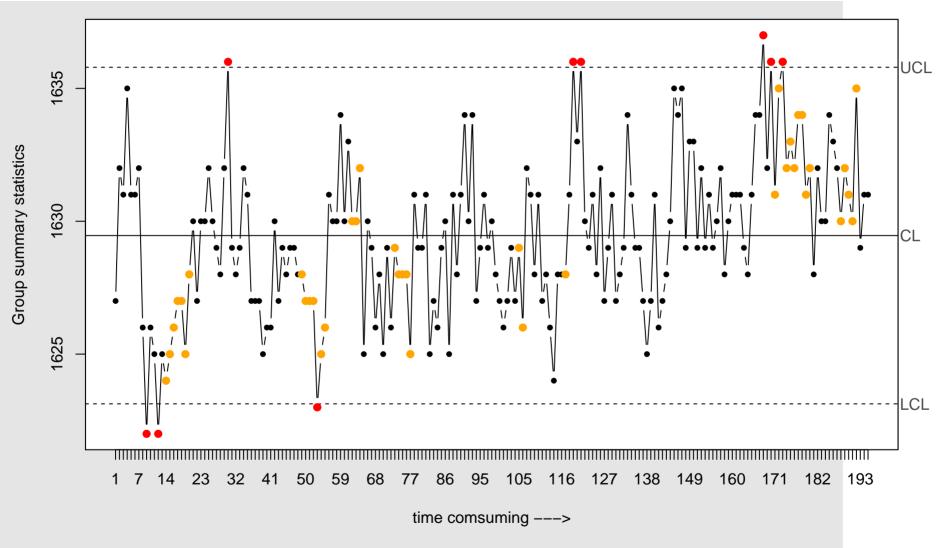




Number of groups = 195 Center = 1629.282 StdDev = 2.170615

LCL = 1622.77 UCL = 1635.794

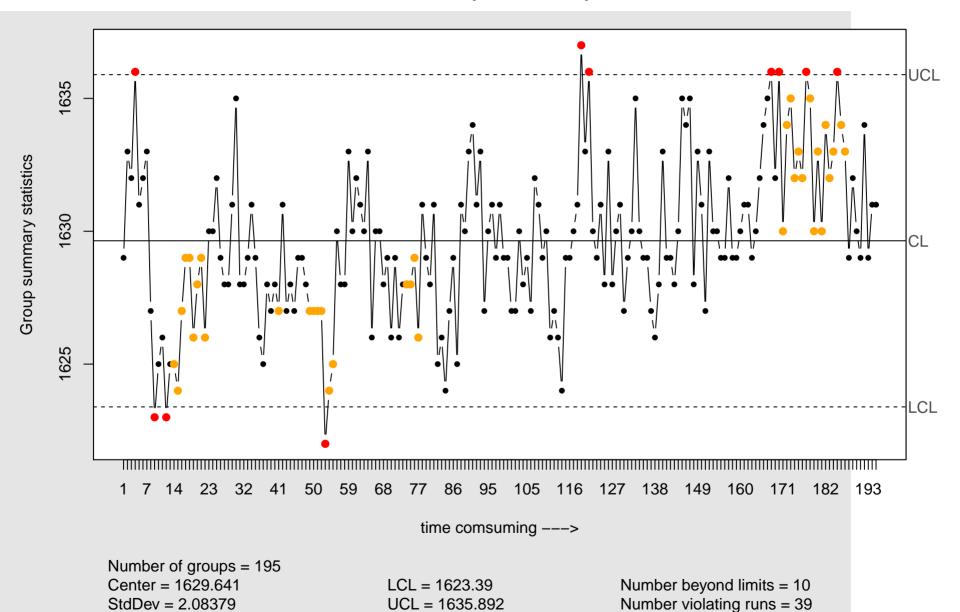
Number beyond limits = 6 Number violating runs = 38

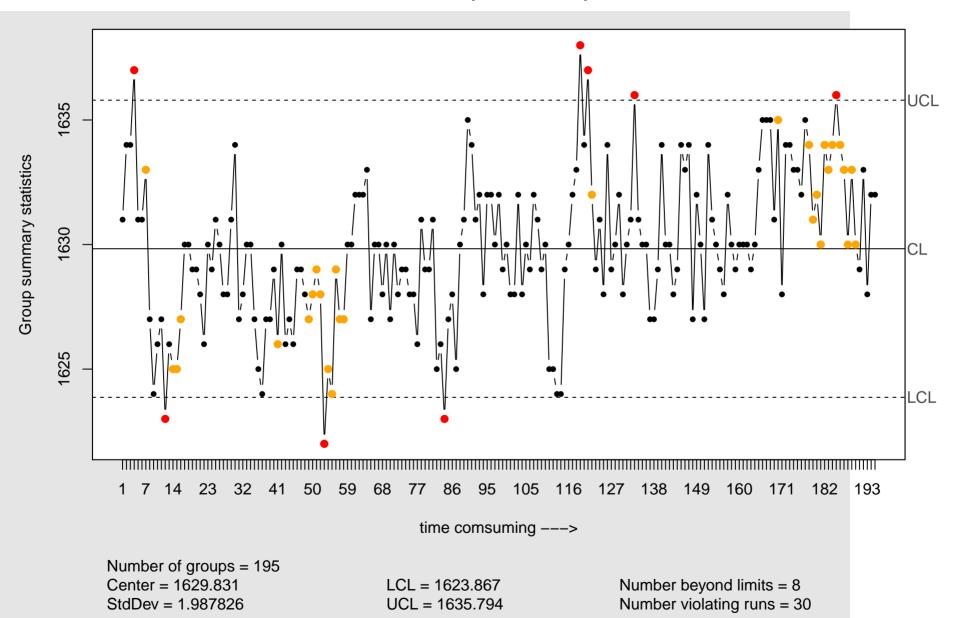


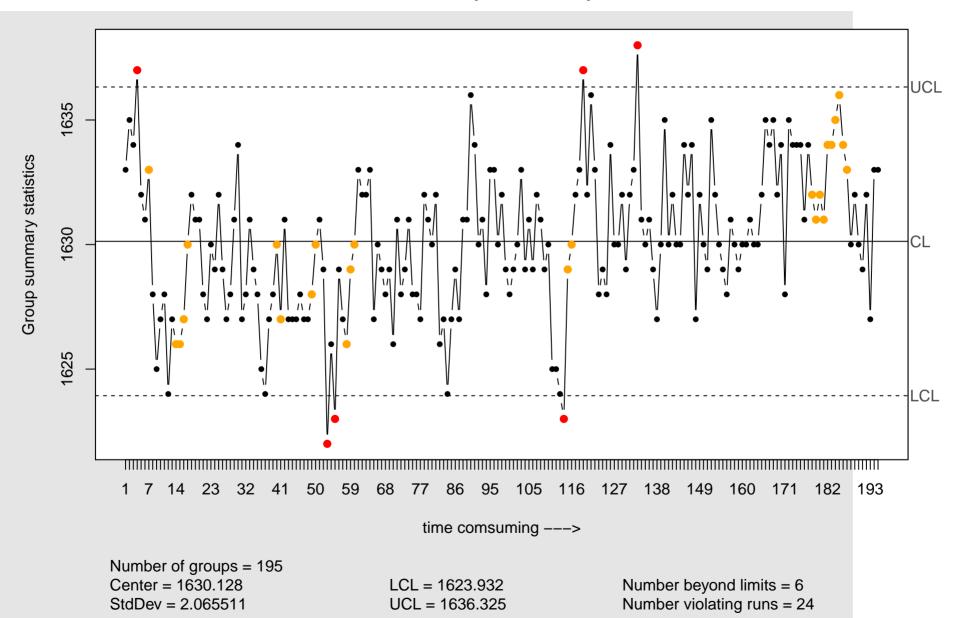
Number of groups = 195 Center = 1629.462 StdDev = 2.111209

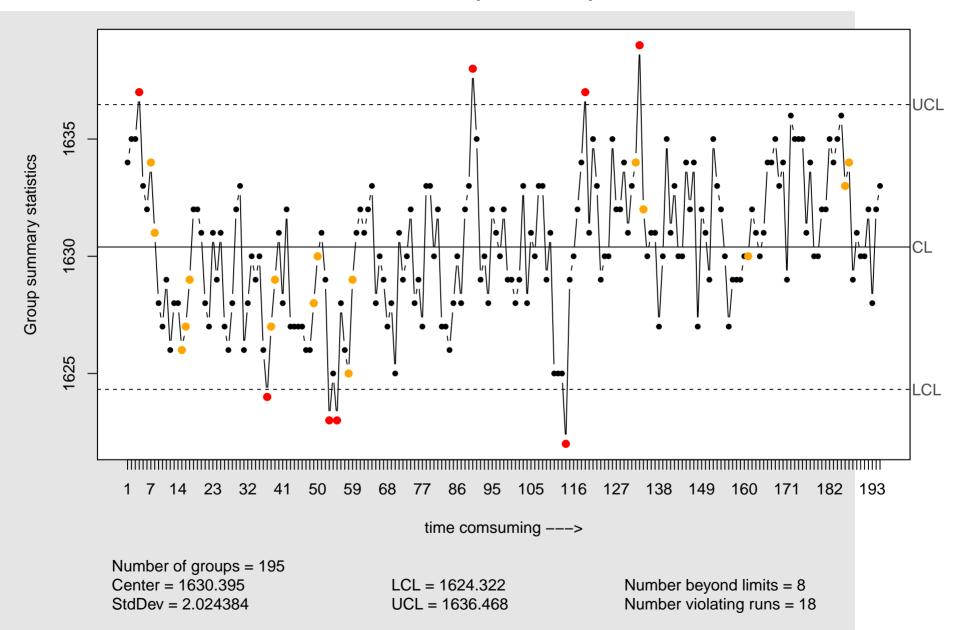
LCL = 1623.128 UCL = 1635.795

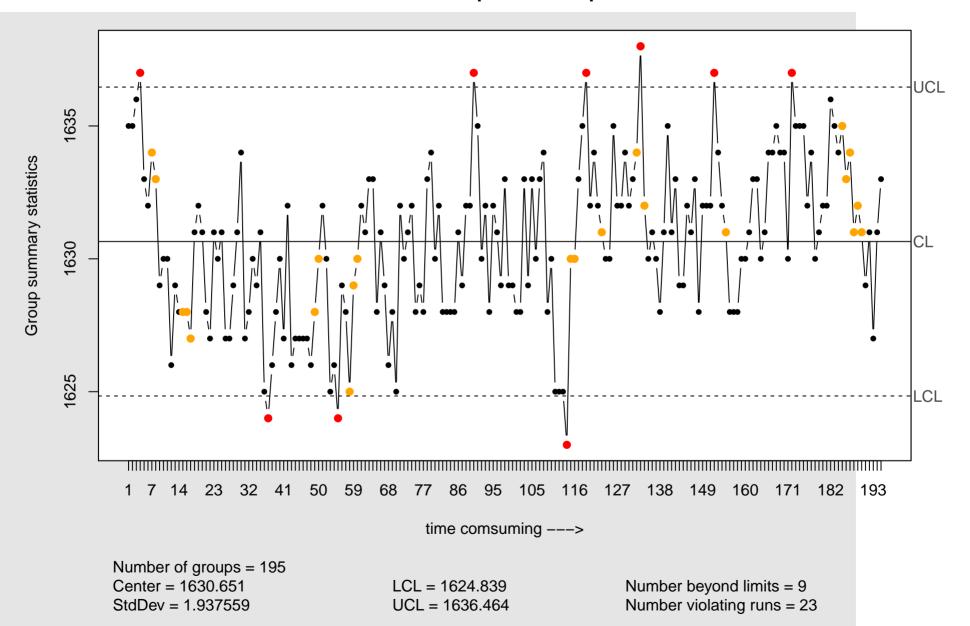
Number beyond limits = 9 Number violating runs = 40

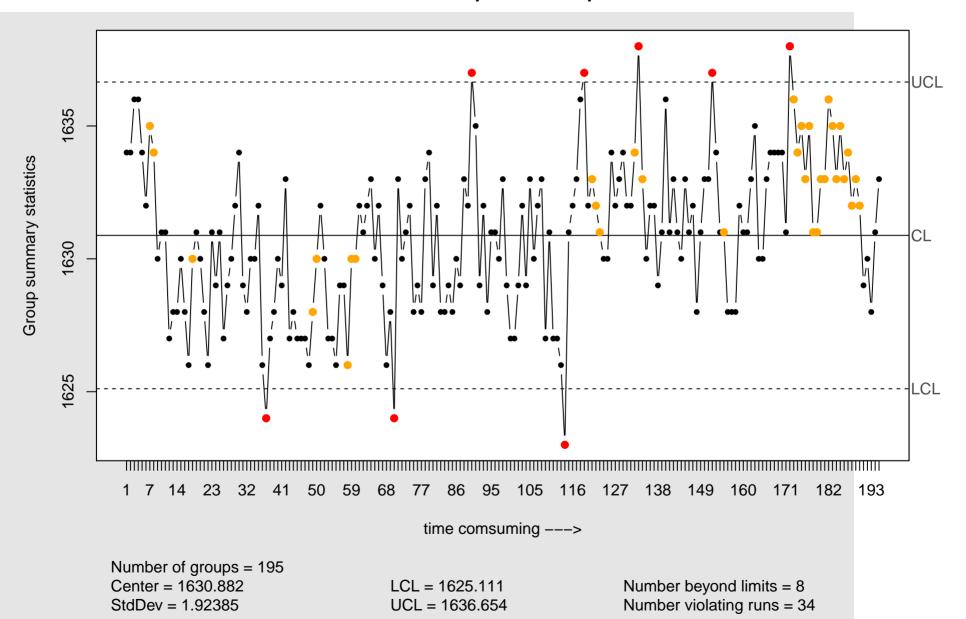


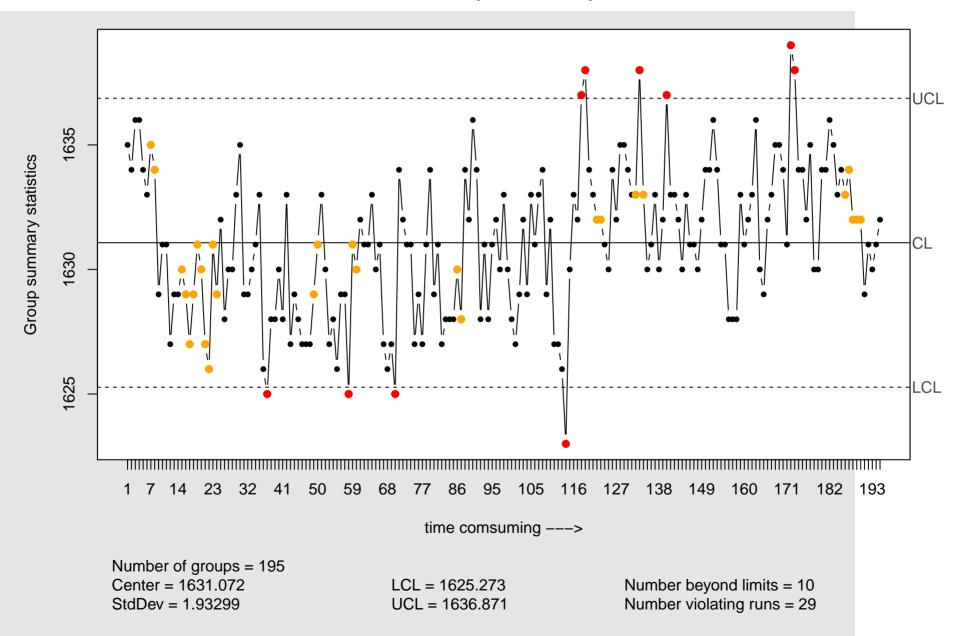


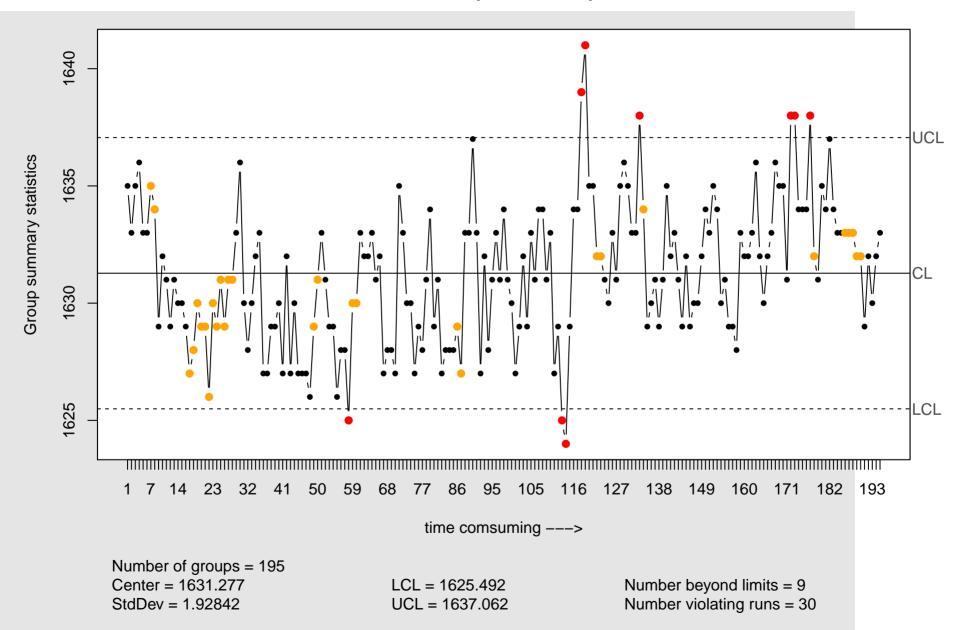


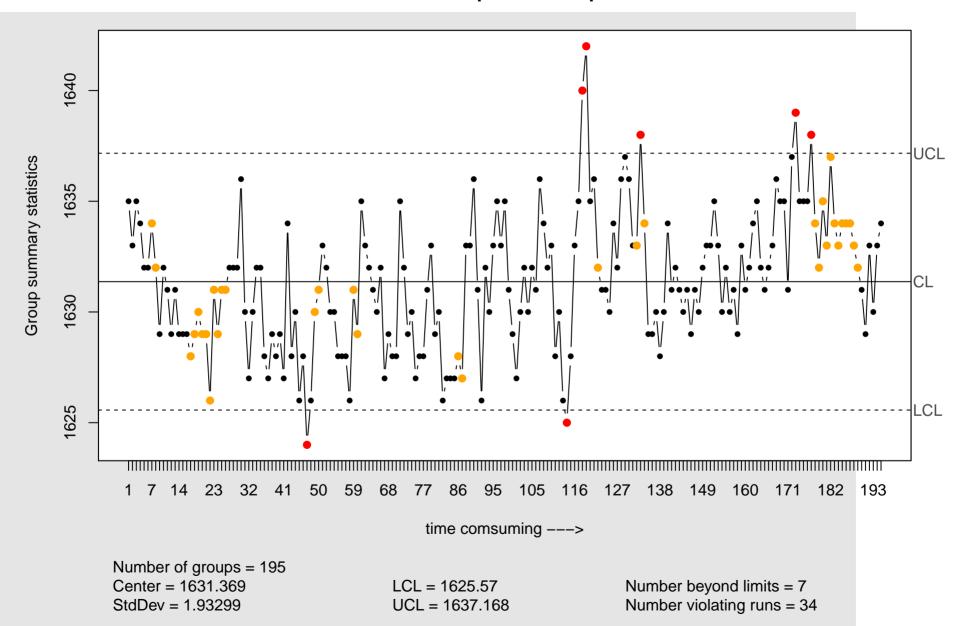


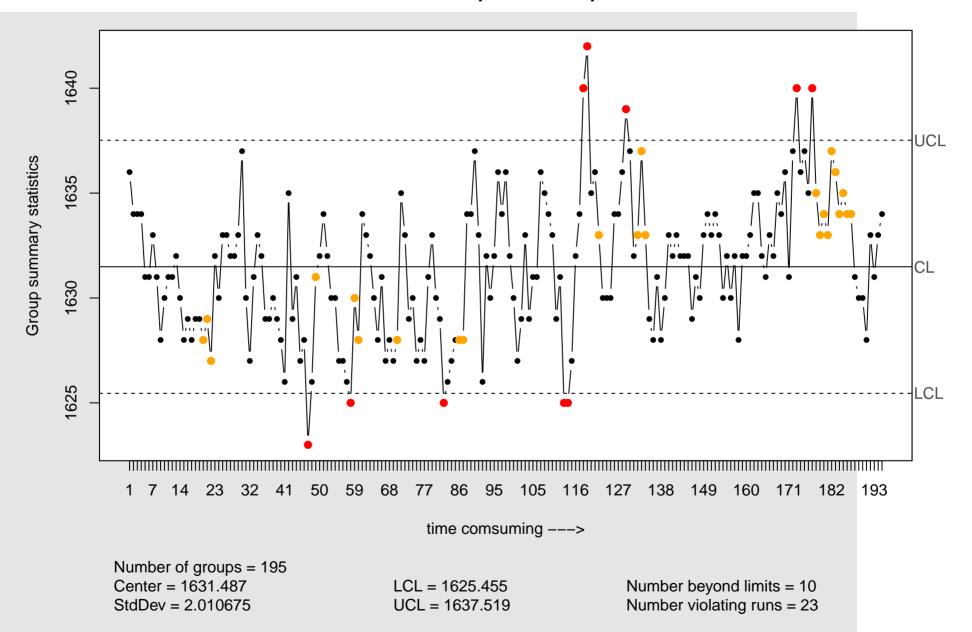


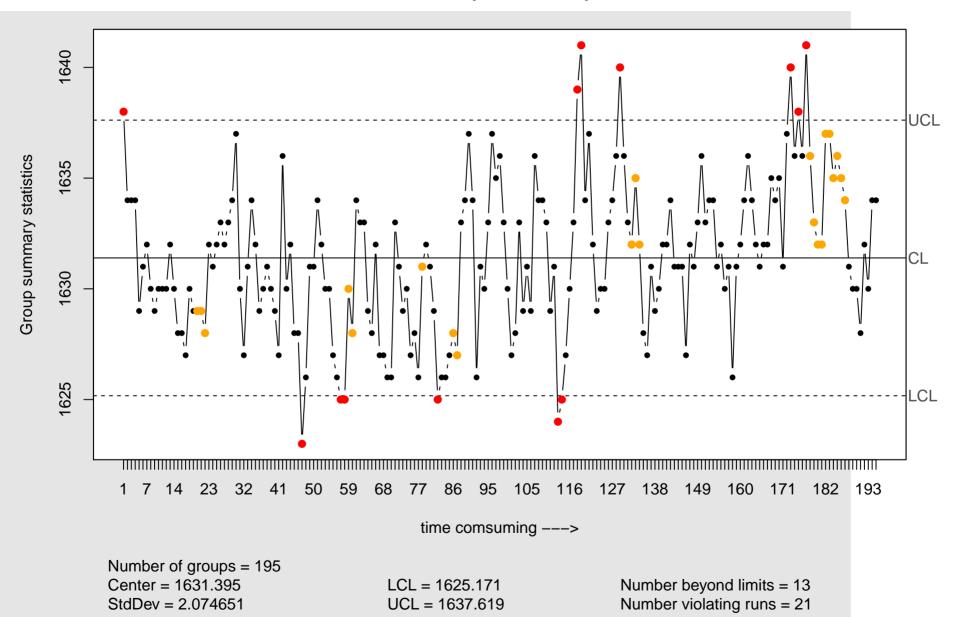


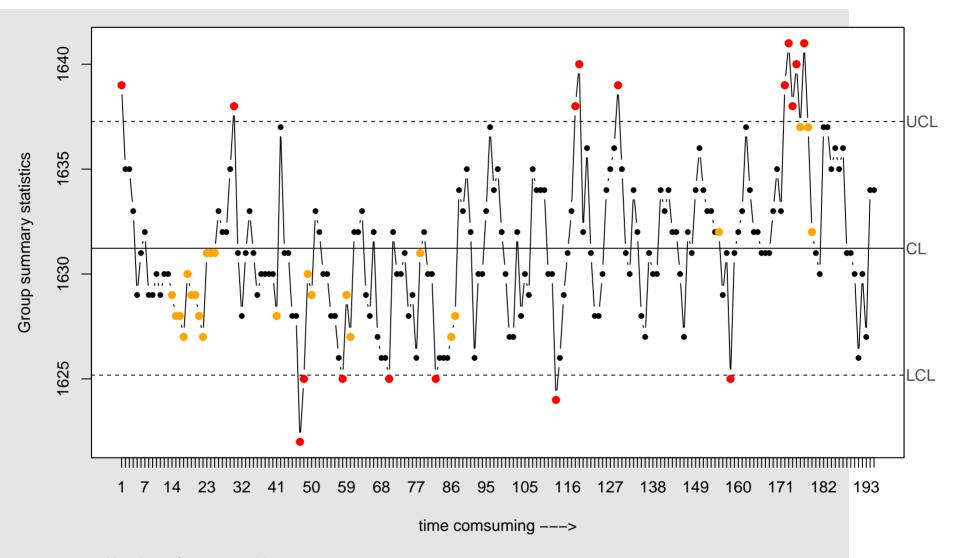












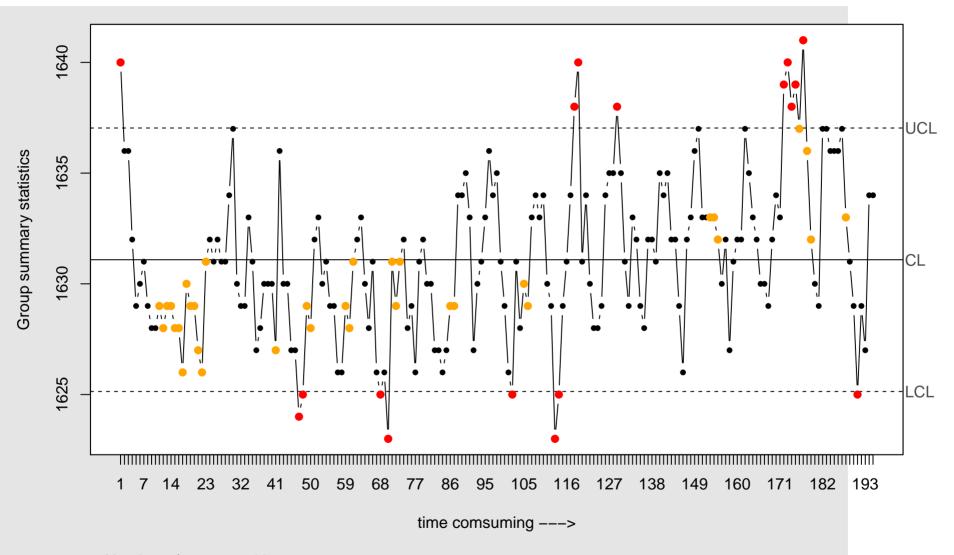
Number of groups = 195 Center = 1631.226

StdDev = 2.015245

LCL = 1625.18 UCL = 1637.271

Number beyond limits = 17

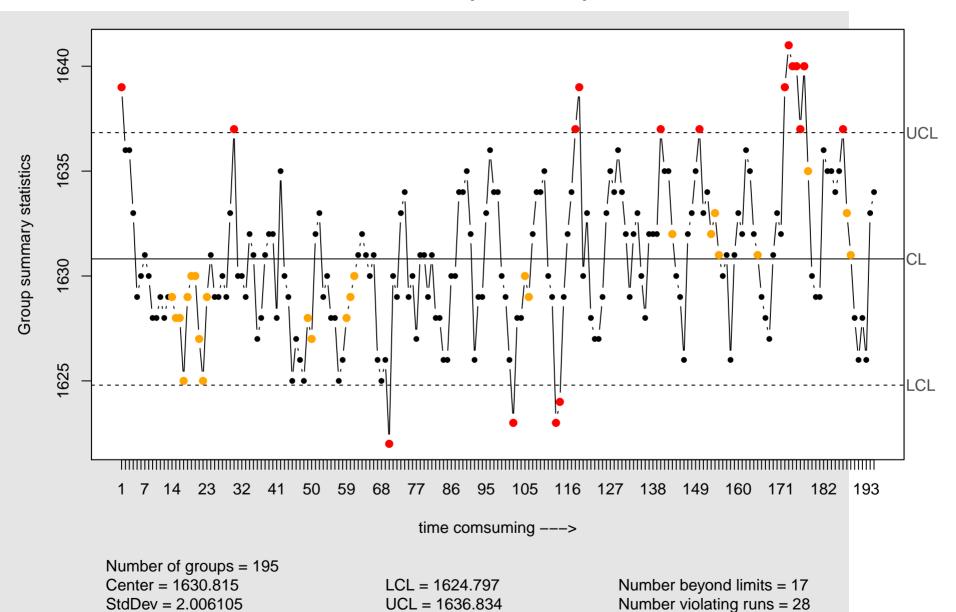
Number violating runs = 26

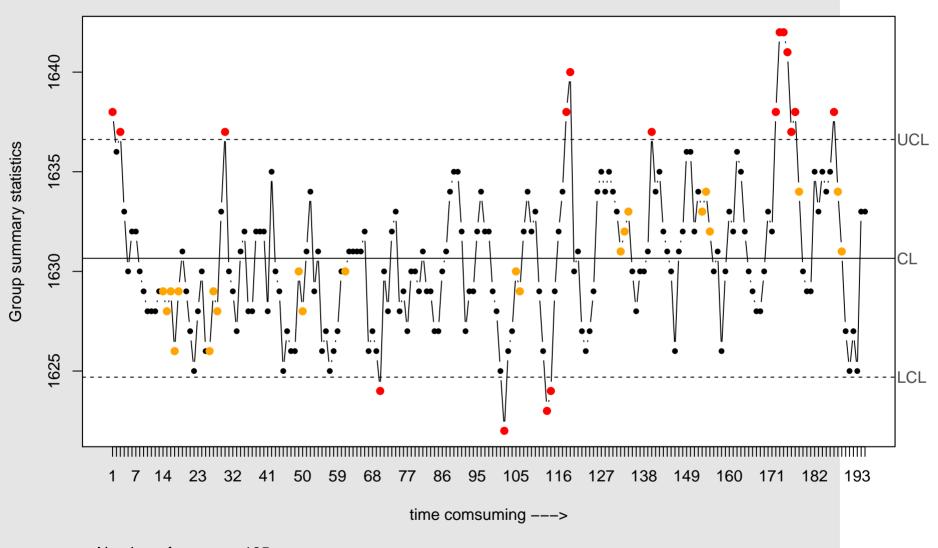


Number of groups = 195 Center = 1631.087

StdDev = 1.983257

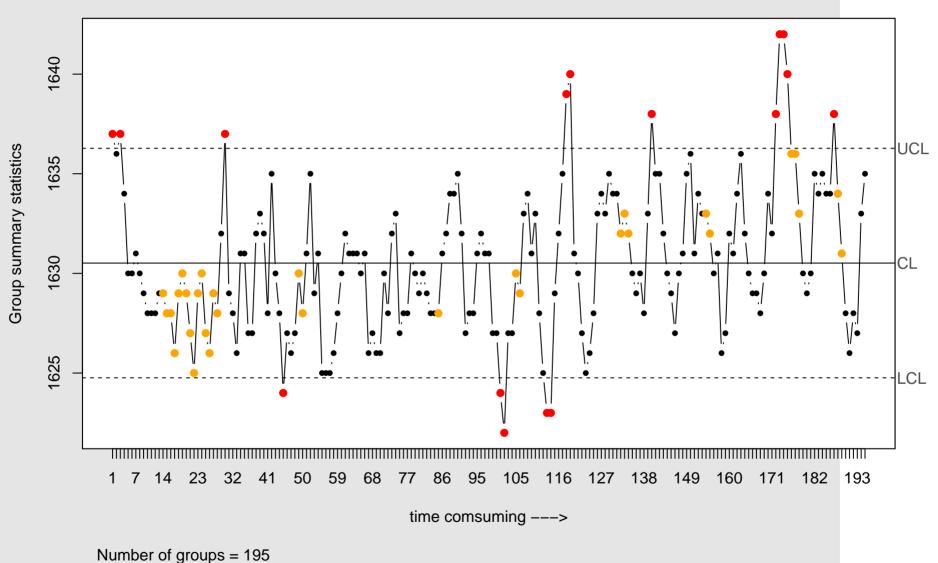
LCL = 1625.137 UCL = 1637.037 Number beyond limits = 17 Number violating runs = 36





Number of groups = 195 Center = 1630.656 StdDev = 1.987826

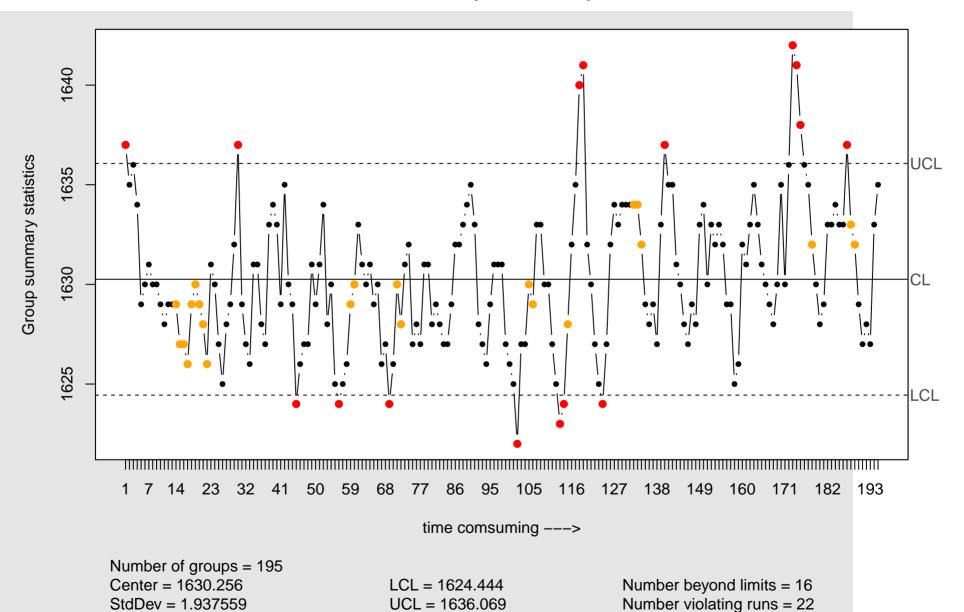
LCL = 1624.693 UCL = 1636.62 Number beyond limits = 17 Number violating runs = 24

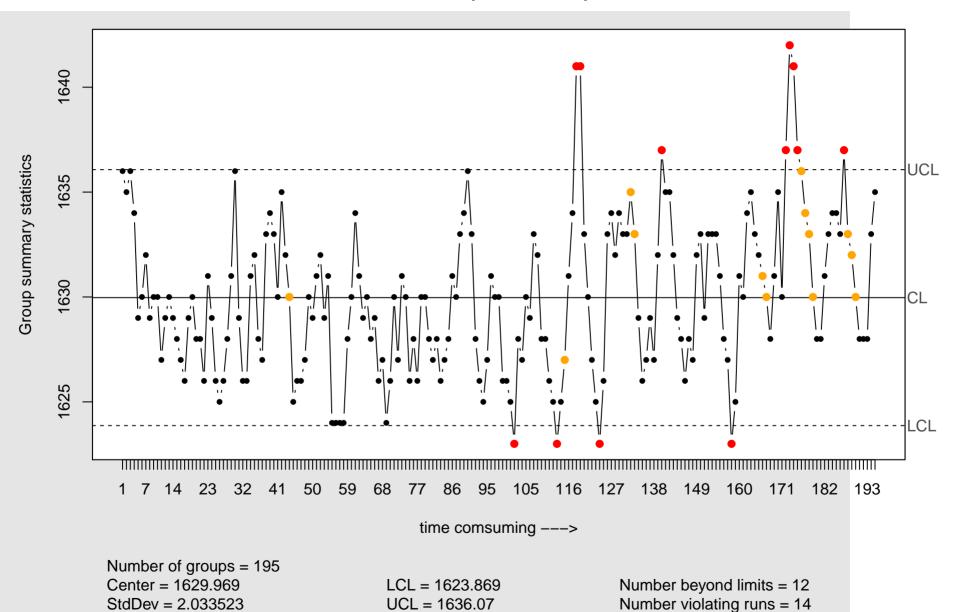


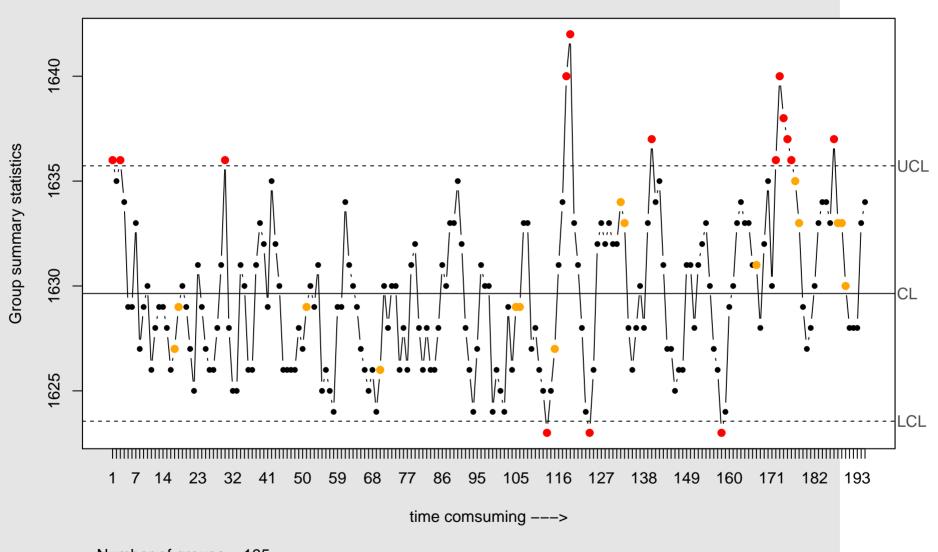
Number of groups = 195 Center = 1630.518 StdDev = 1.919281

LCL = 1624.76 UCL = 1636.276

Number beyond limits = 16 Number violating runs = 30



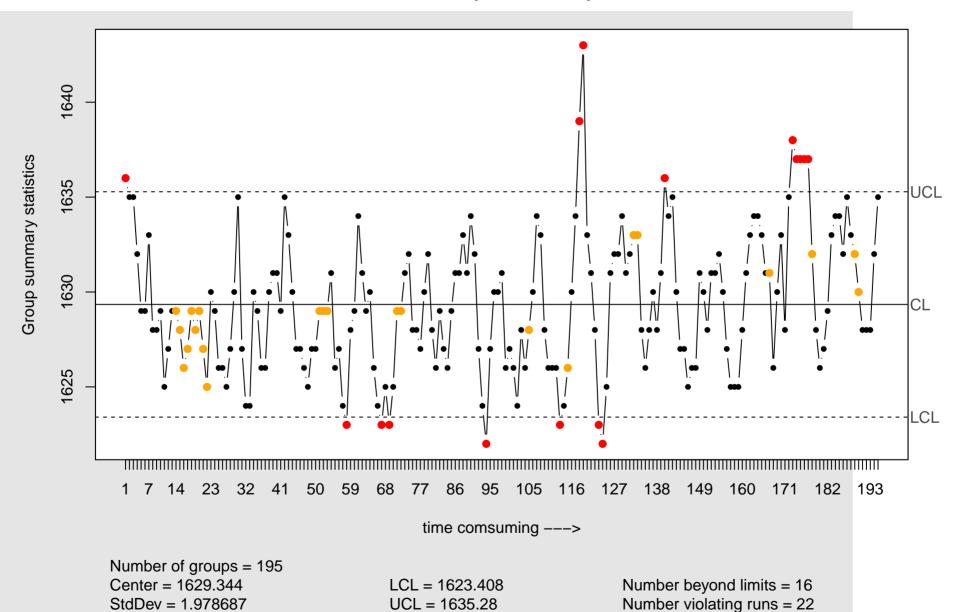


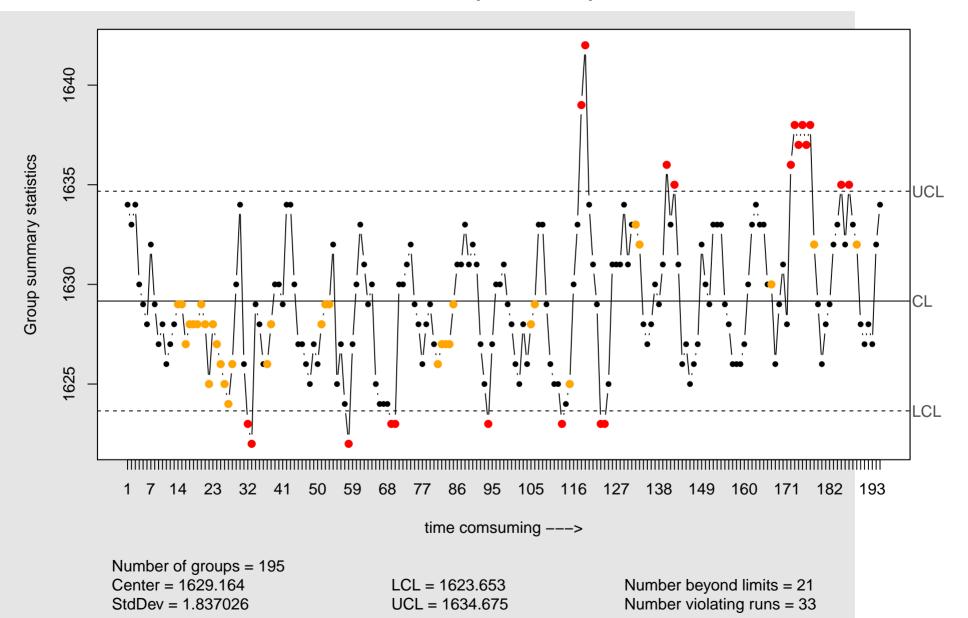


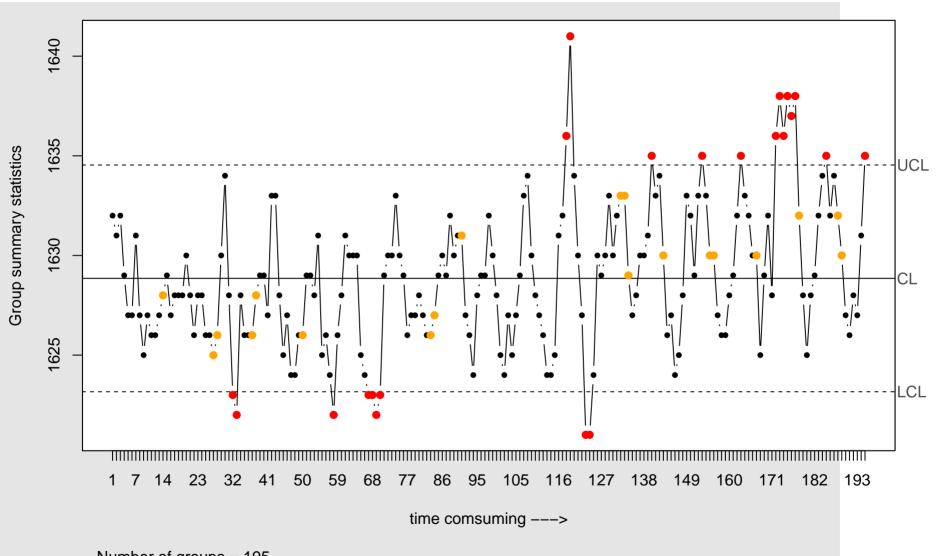
Number of groups = 195 Center = 1629.641 StdDev = 2.028954

LCL = 1623.554 UCL = 1635.728

Number beyond limits = 15 Number violating runs = 17

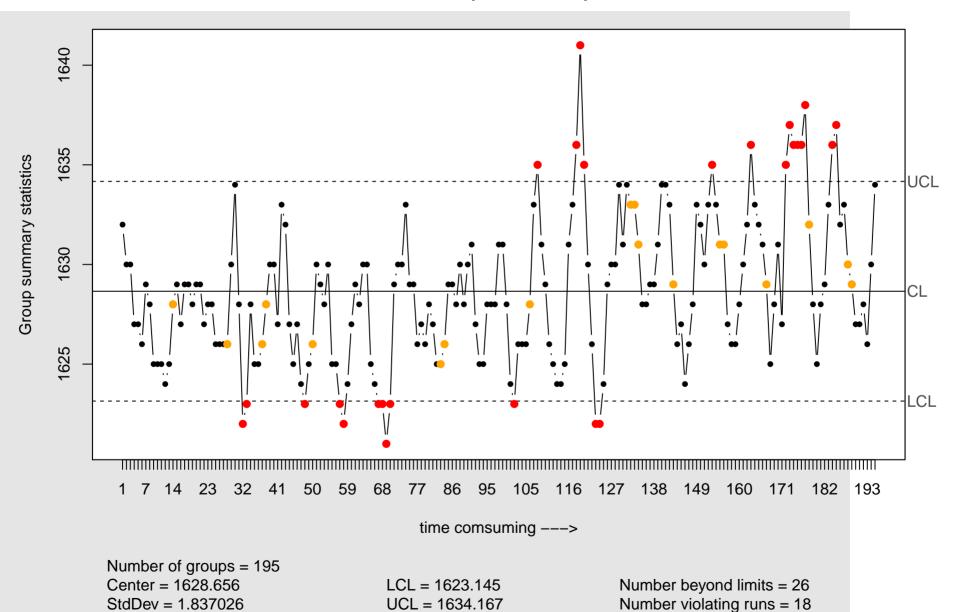


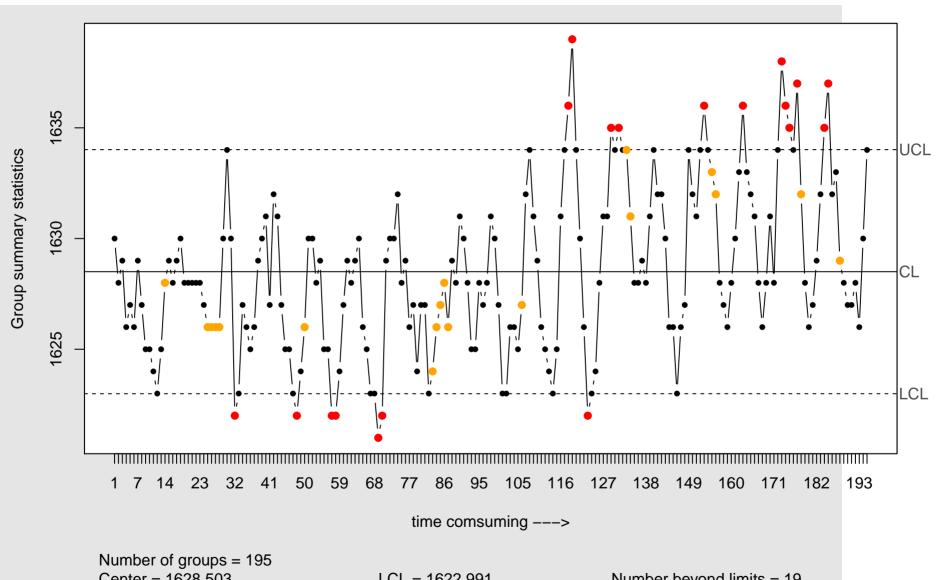




Number of groups = 195 Center = 1628.851 StdDev = 1.896432

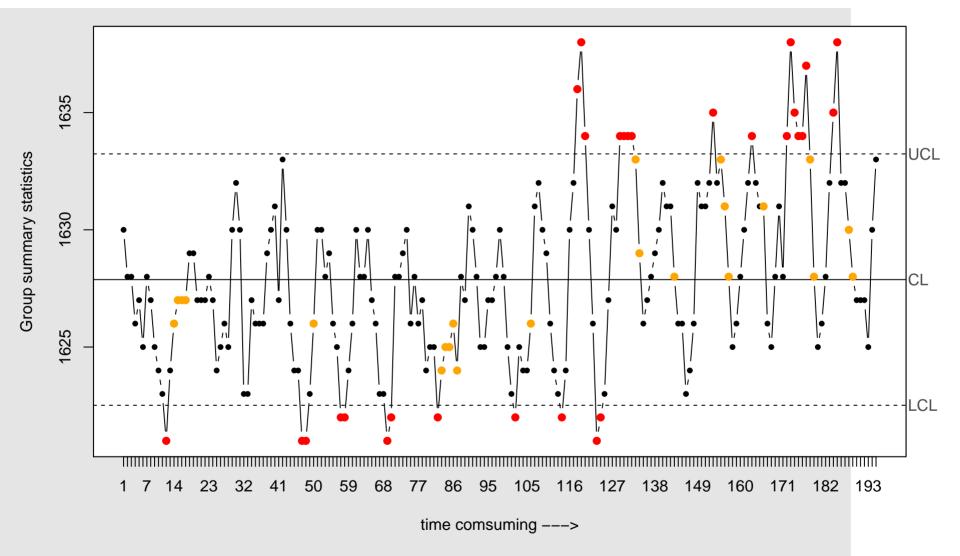
LCL = 1623.162 UCL = 1634.541 Number beyond limits = 22 Number violating runs = 19





Center = 1628.503StdDev = 1.837026

LCL = 1622.991 UCL = 1634.014 Number beyond limits = 19 Number violating runs = 18

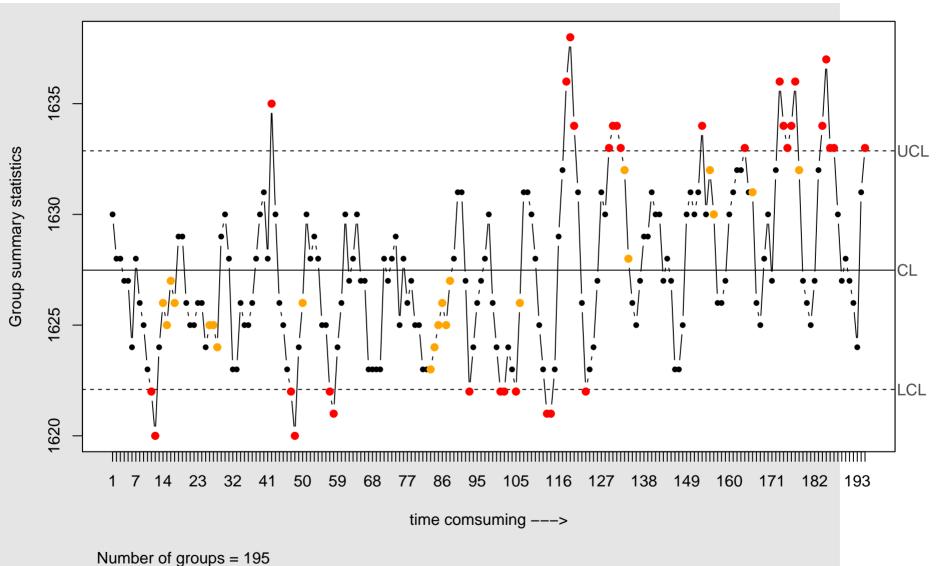


Number of groups = 195 Center = 1627.877

StdDev = 1.786759

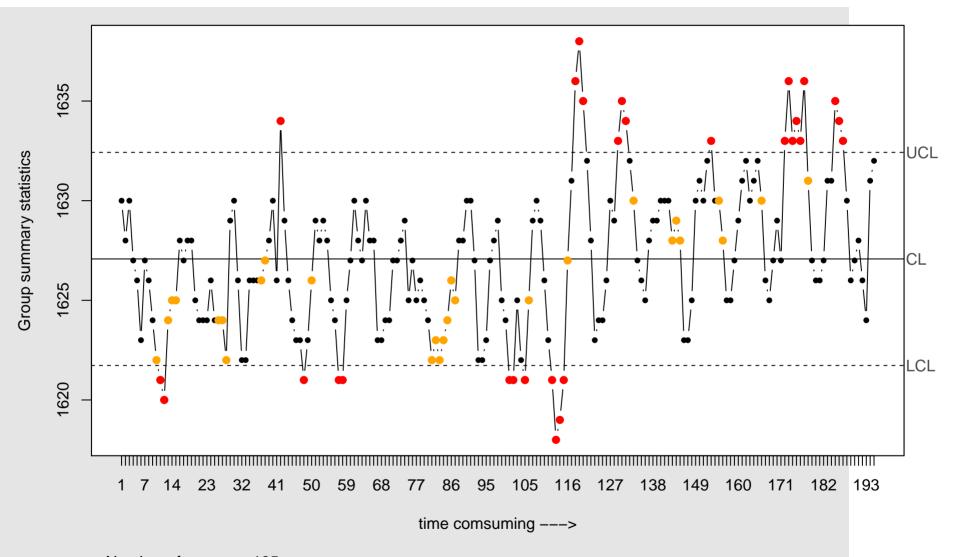
LCL = 1622.517 UCL = 1633.237

Number beyond limits = 29 Number violating runs = 25



Number of groups = 195 Center = 1627.482 StdDev = 1.795898

LCL = 1622.094 UCL = 1632.87 Number beyond limits = 33 Number violating runs = 22

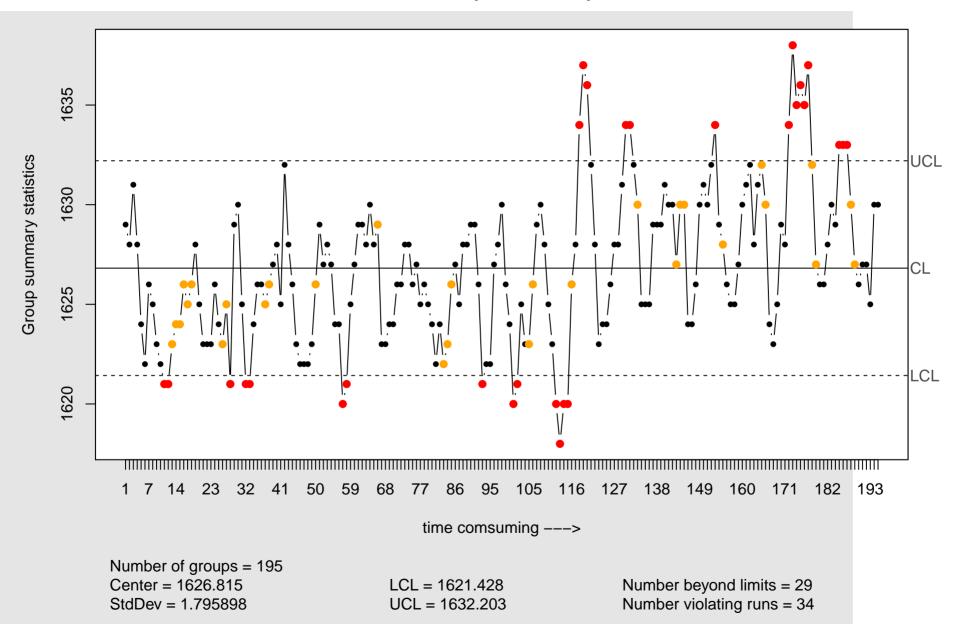


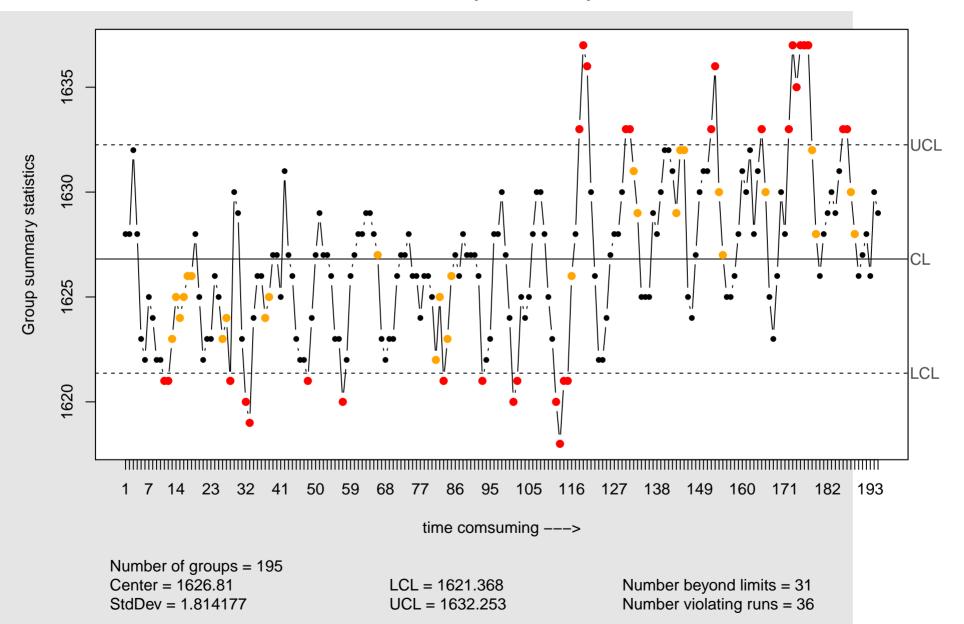
Number of groups = 195 Center = 1627.077

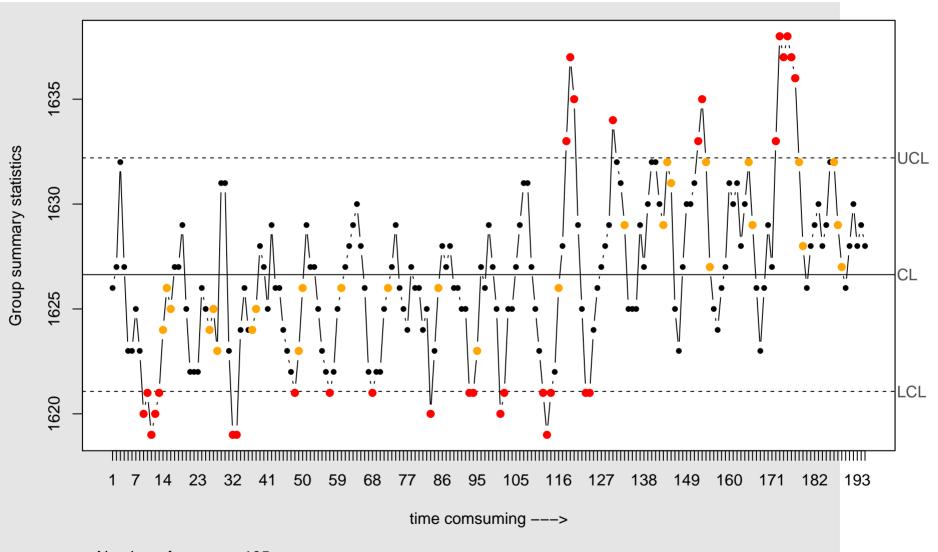
StdDev = 1.782189

LCL = 1621.73 UCL = 1632.423

Number beyond limits = 29 Number violating runs = 30



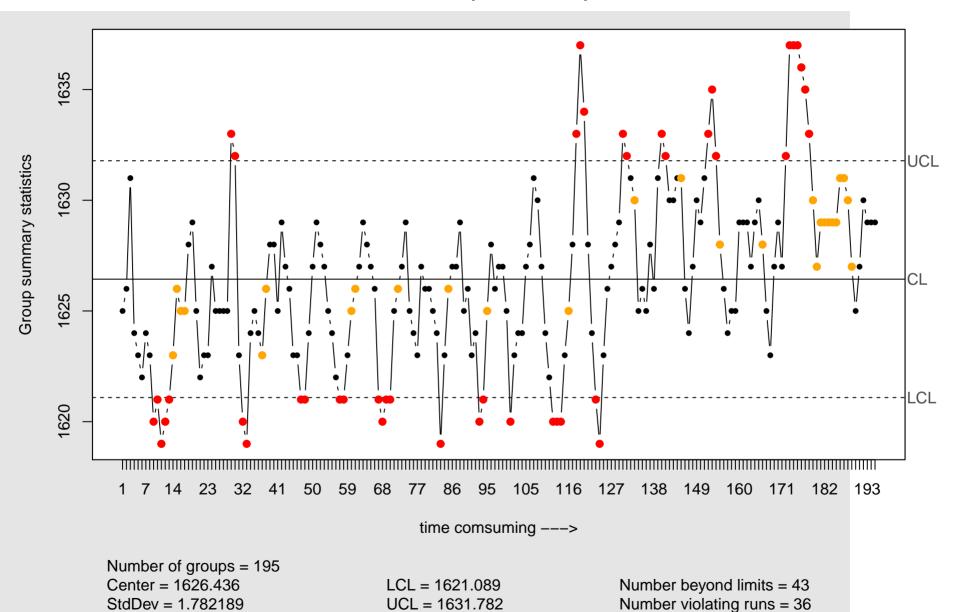


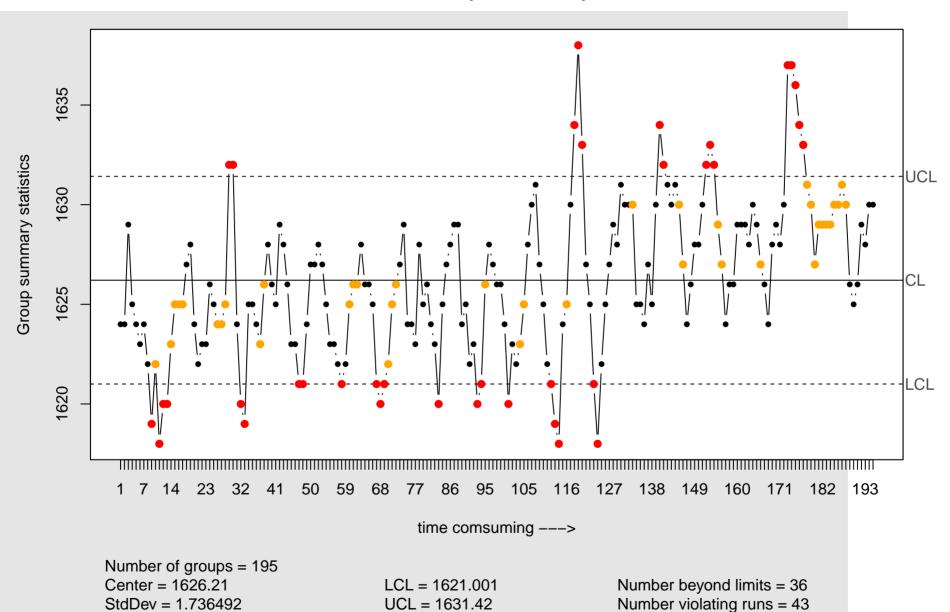


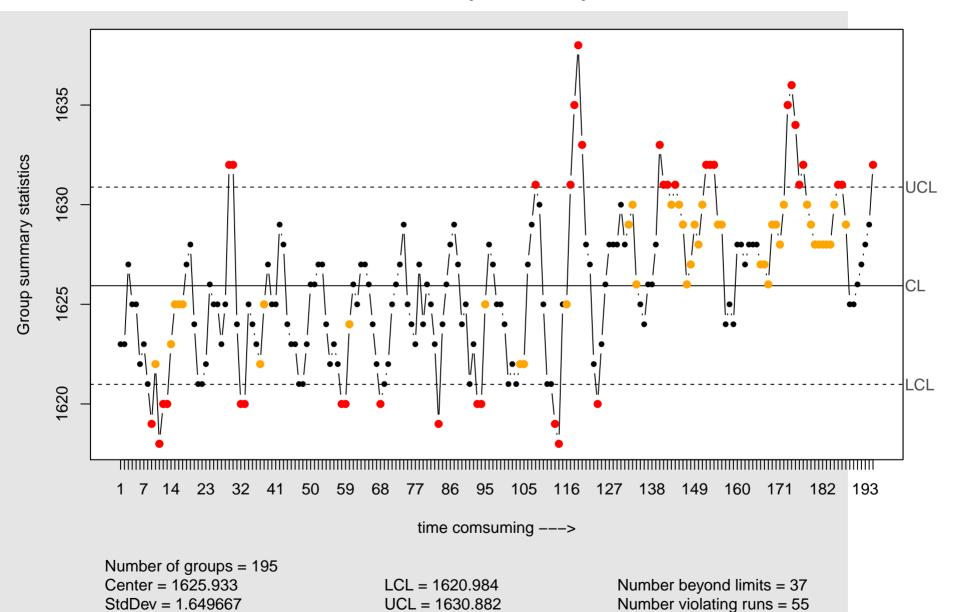
Number of groups = 195 Center = 1626.636

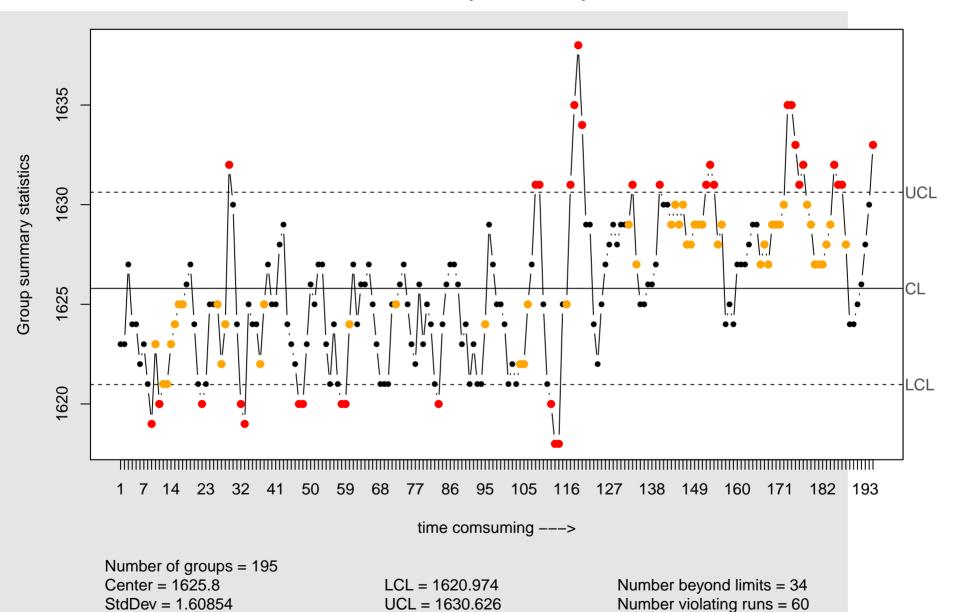
StdDev = 1.855305

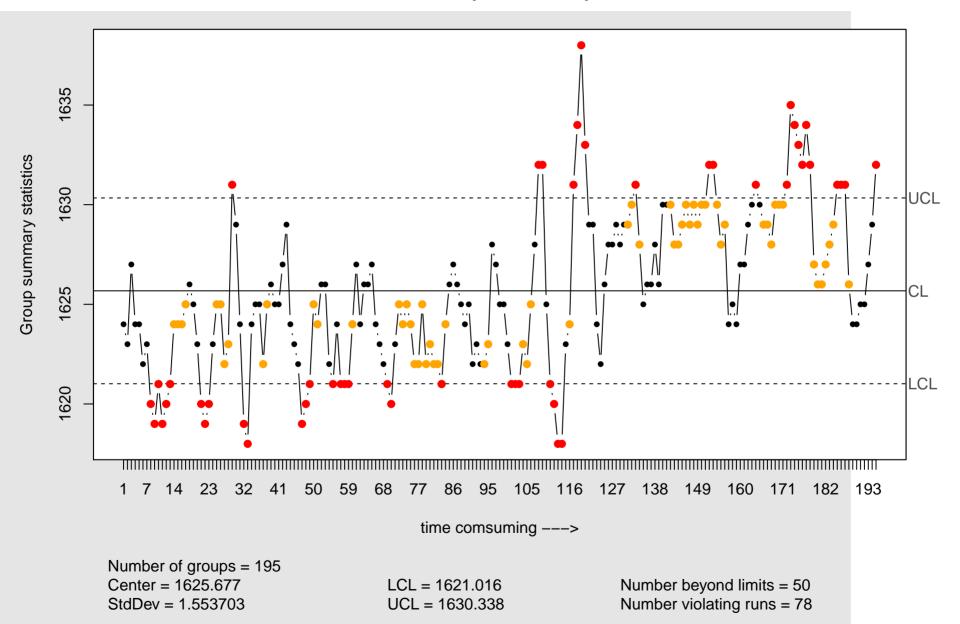
LCL = 1621.07 UCL = 1632.202 Number beyond limits = 32 Number violating runs = 33

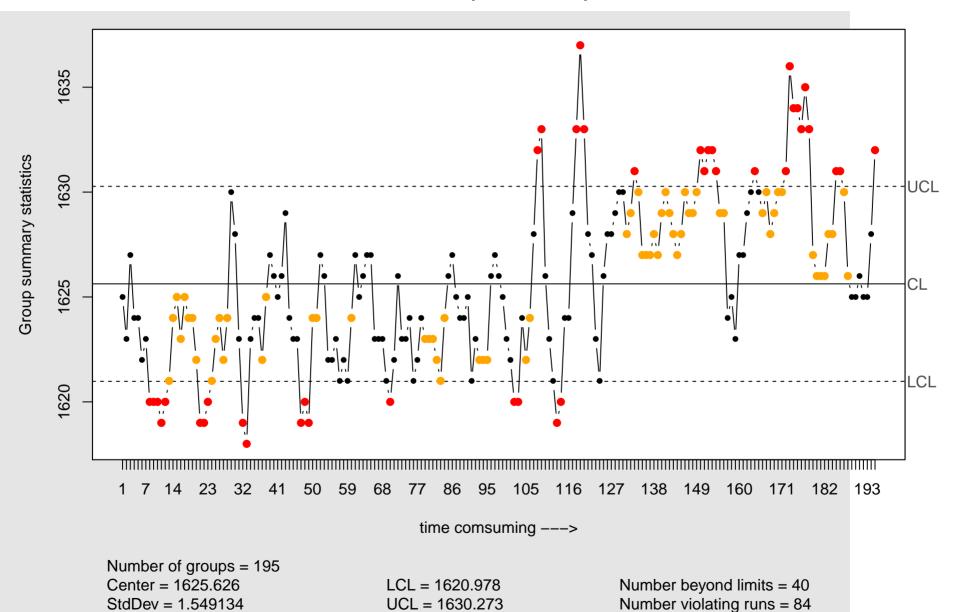


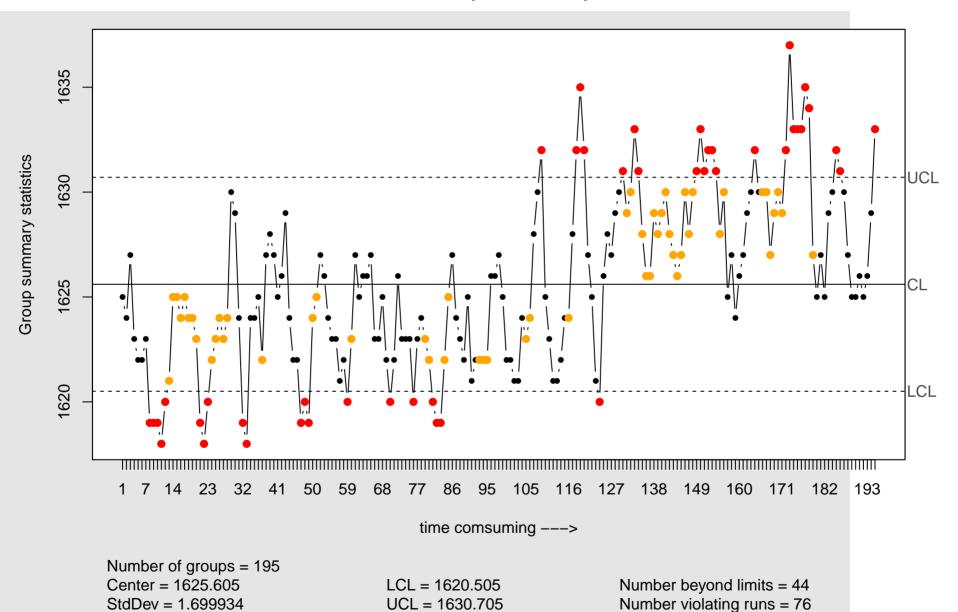


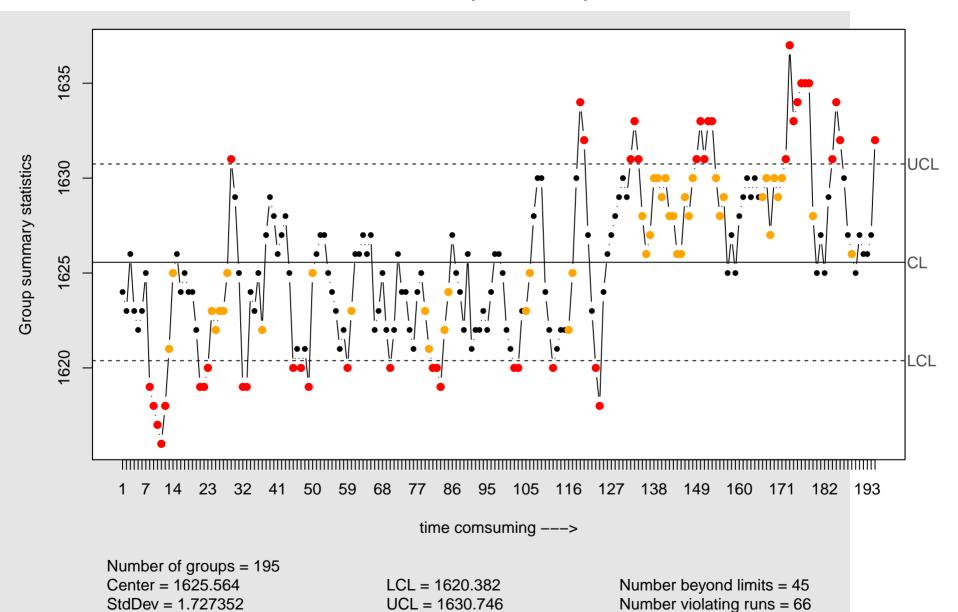


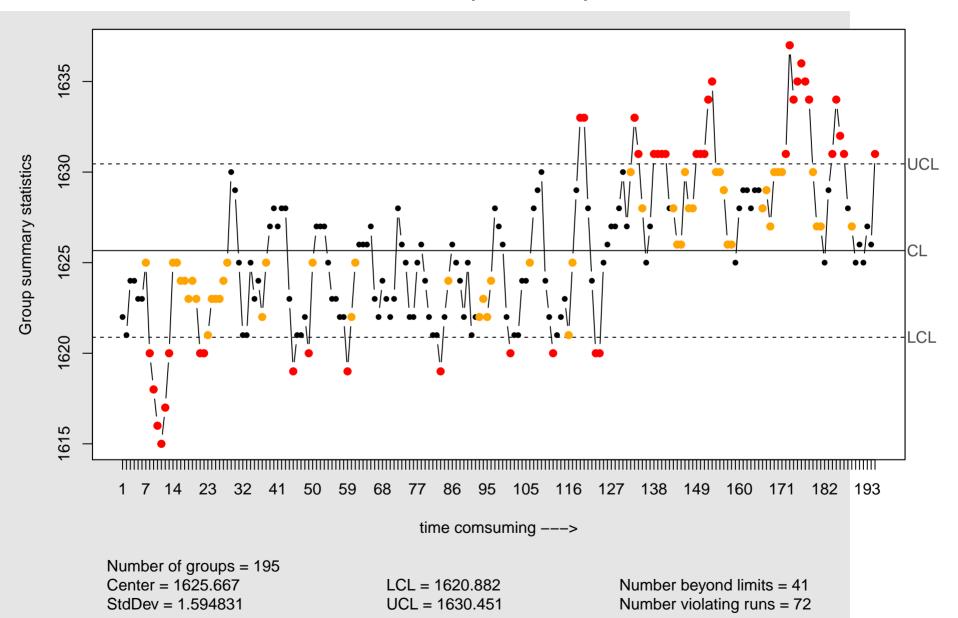


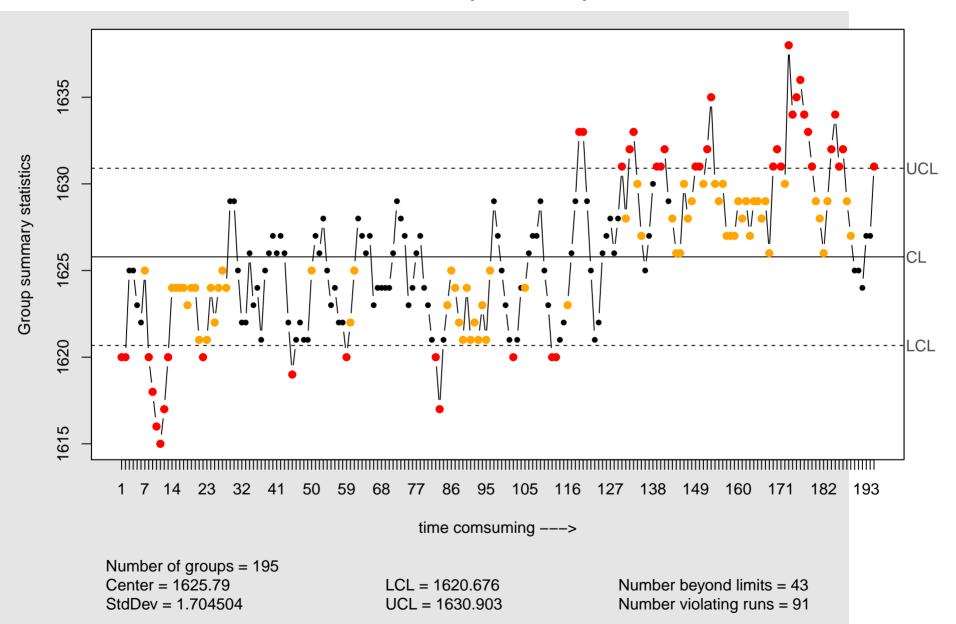


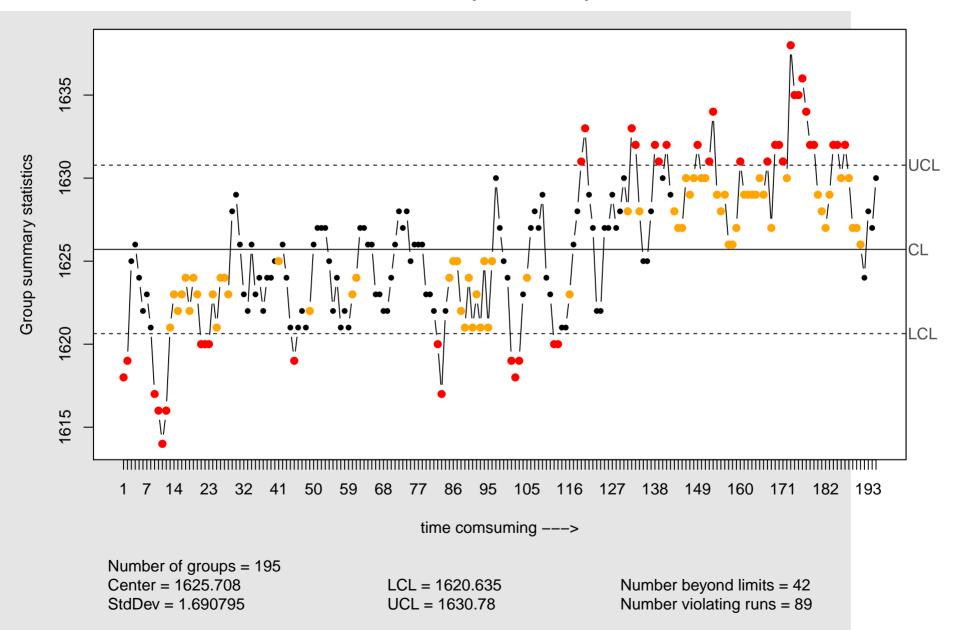


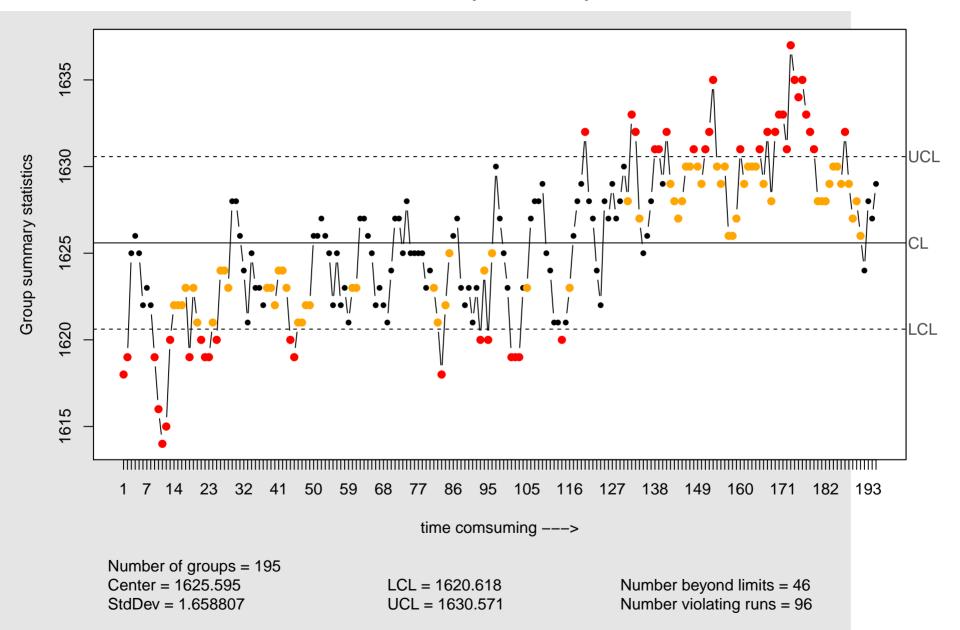


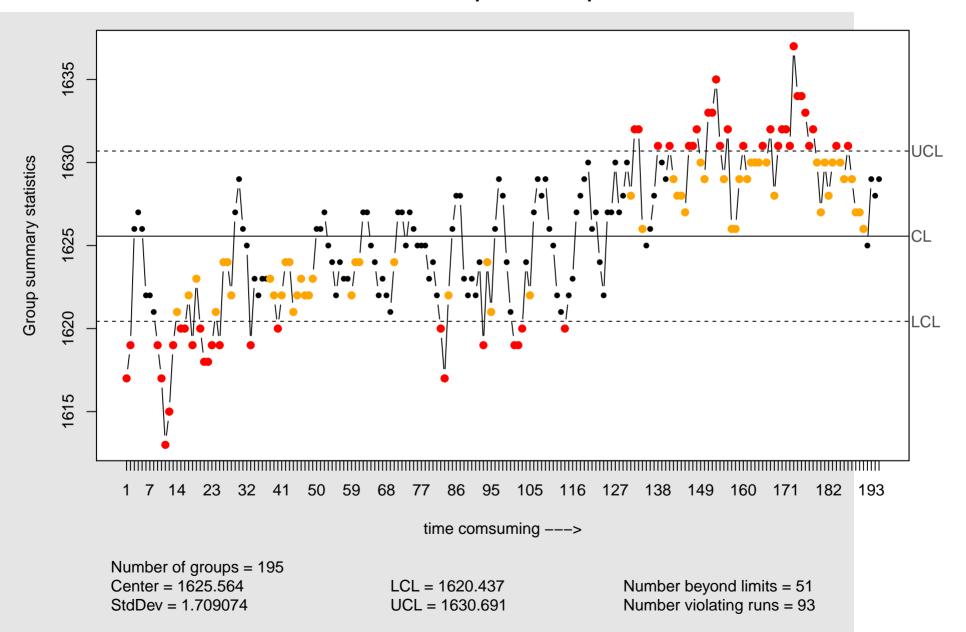


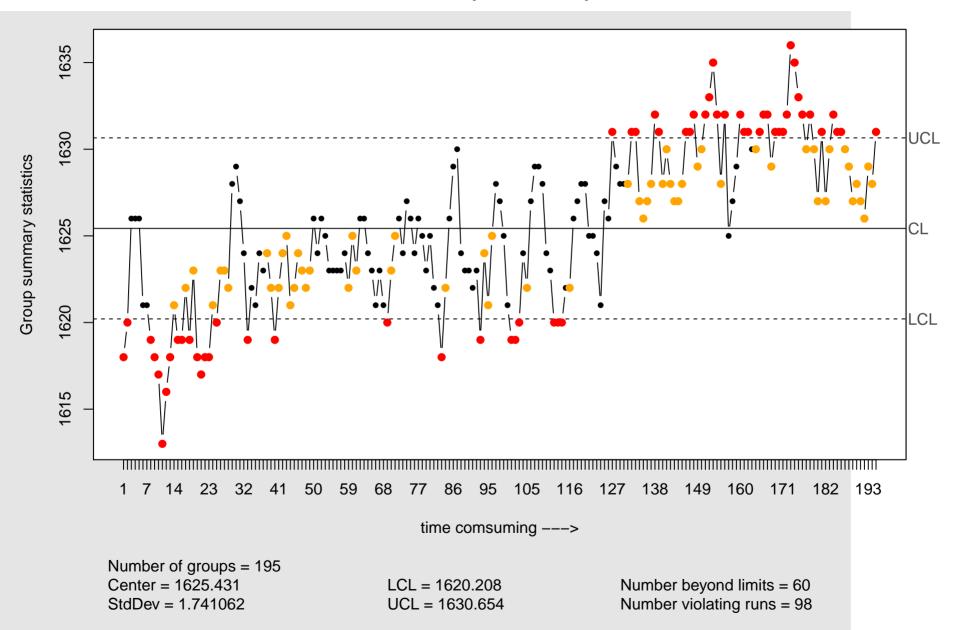


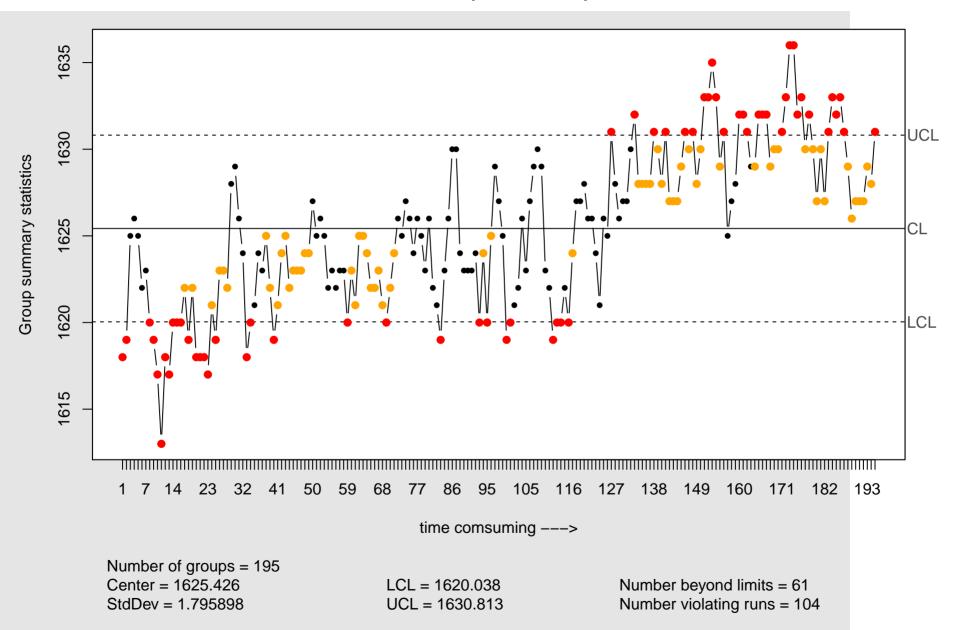


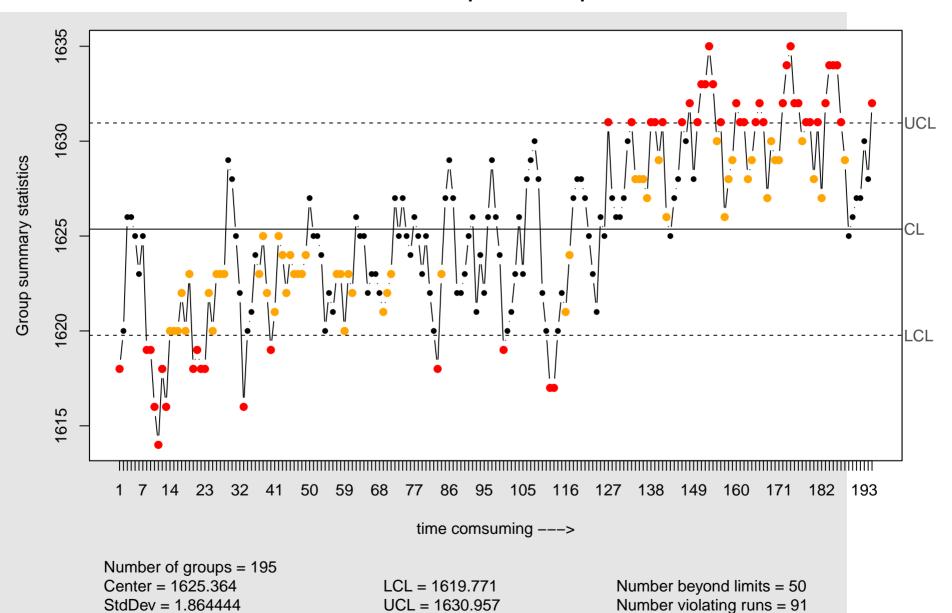


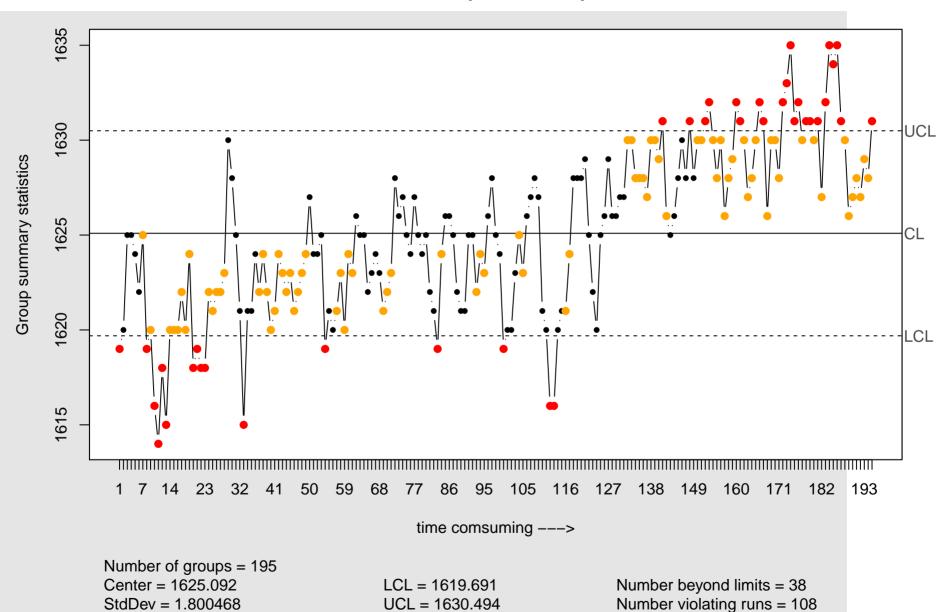


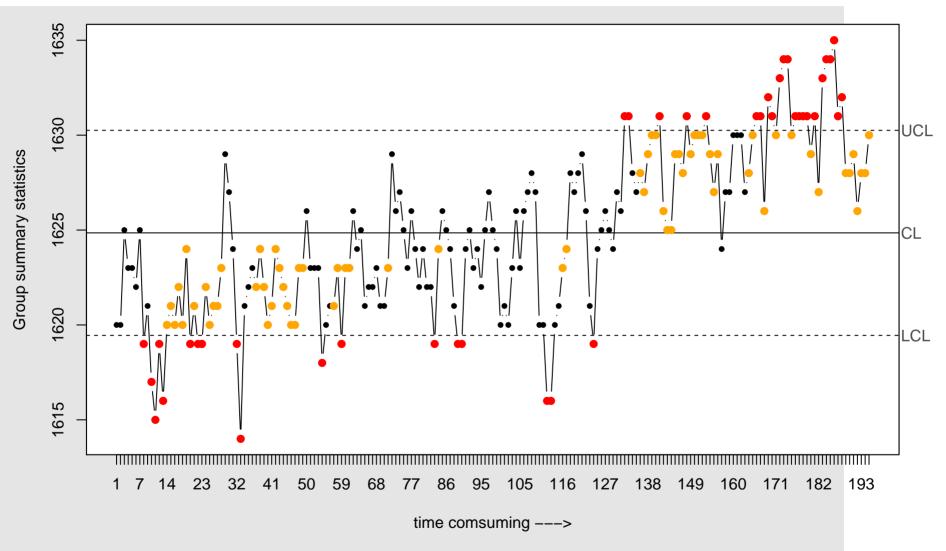








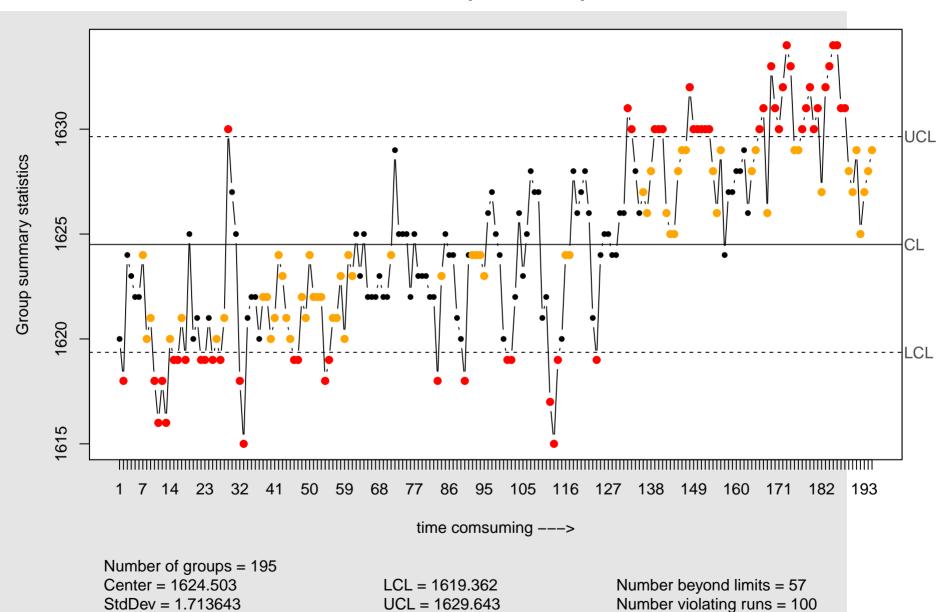


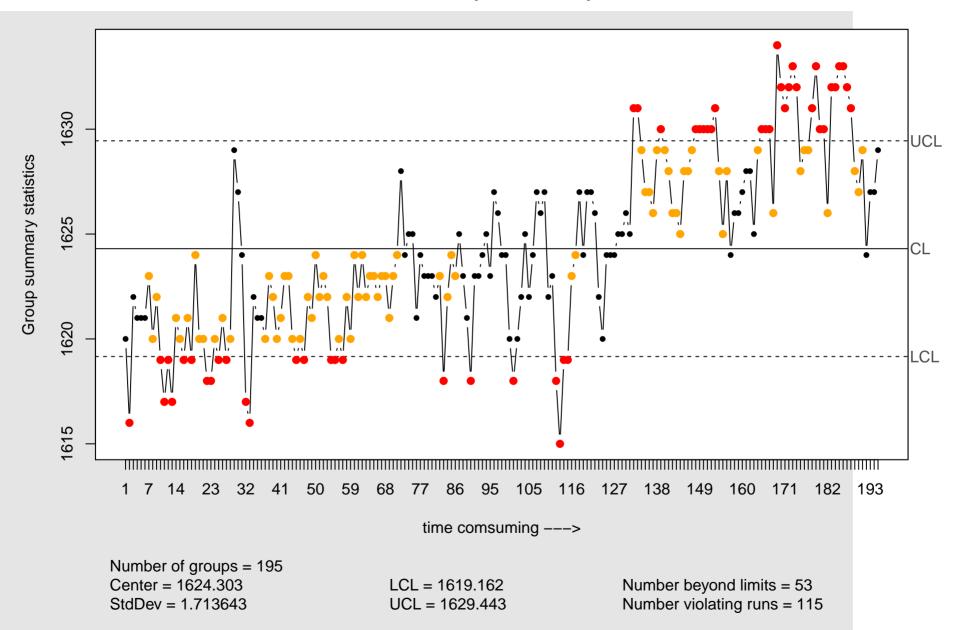


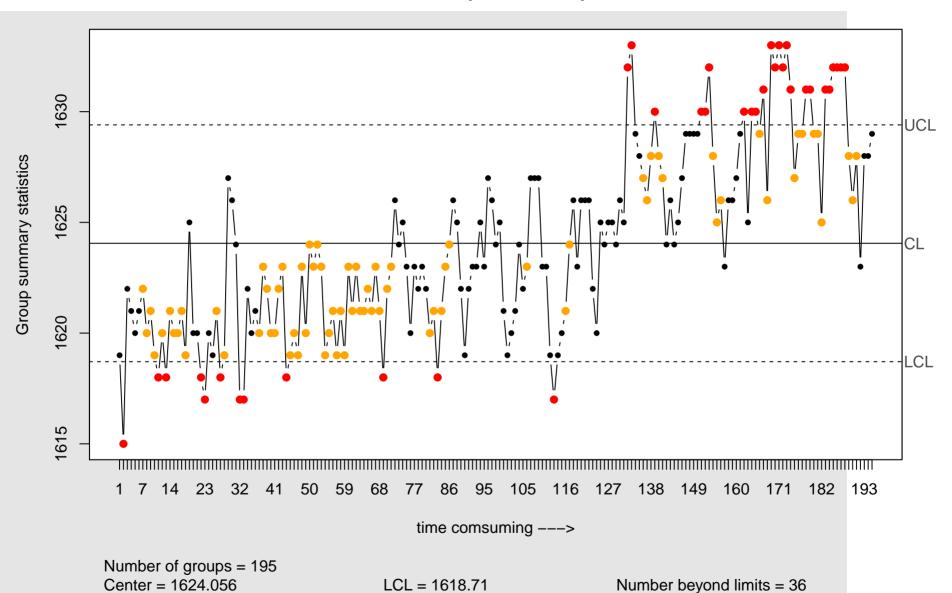
Number of groups = 195 Center = 1624.851

StdDev = 1.800468

LCL = 1619.45 UCL = 1630.253 Number beyond limits = 41 Number violating runs = 90



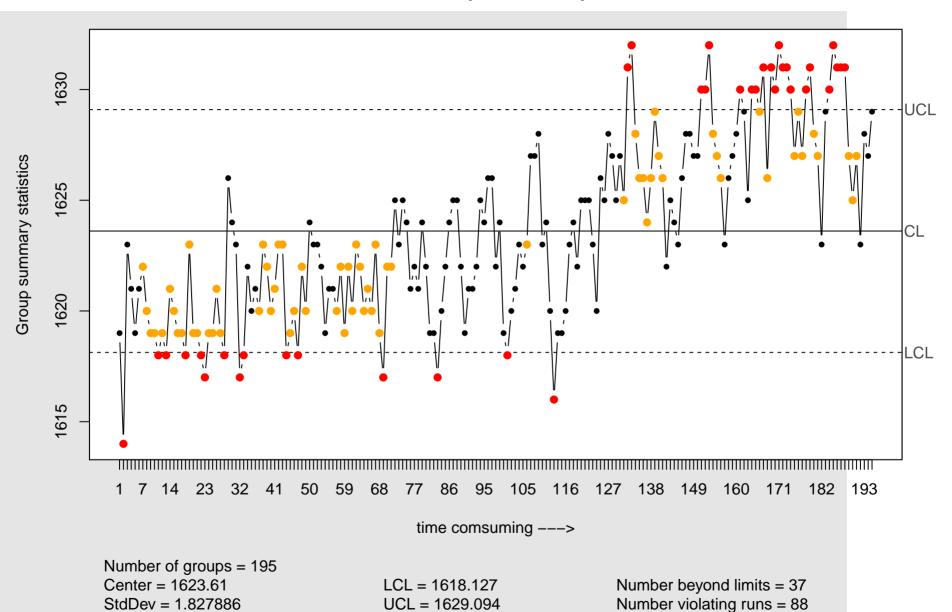


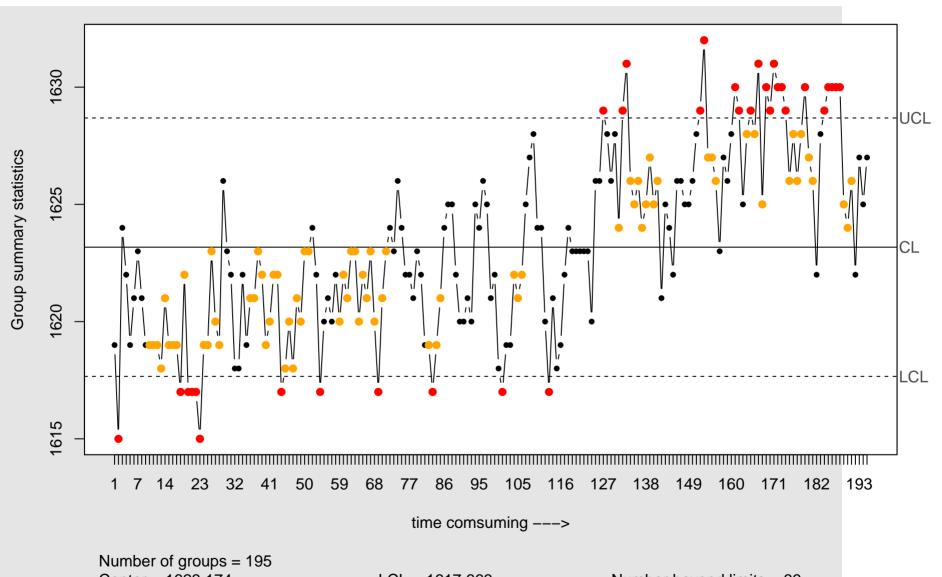


UCL = 1629.403

Number violating runs = 99

StdDev = 1.782189

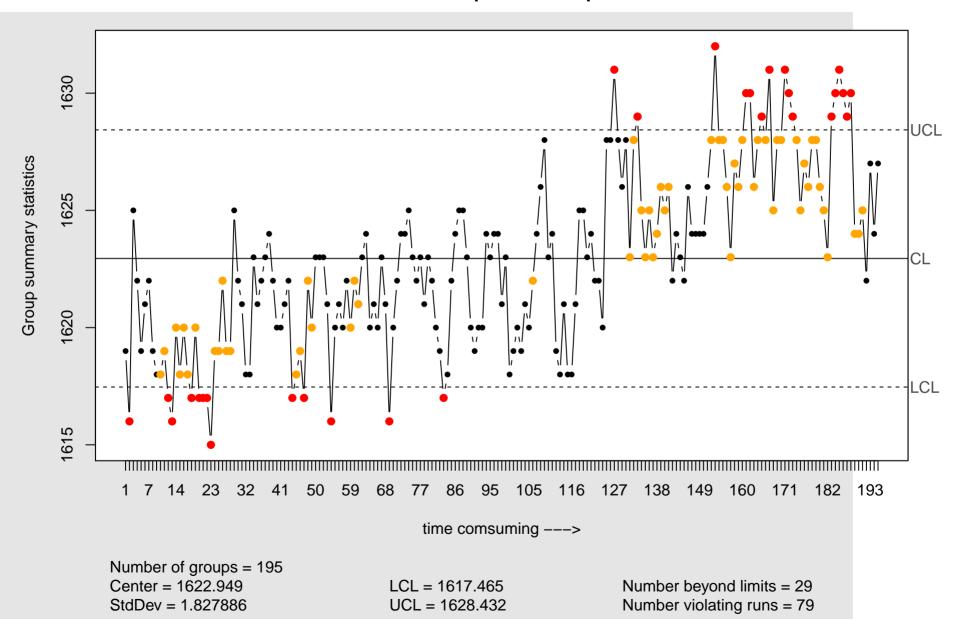


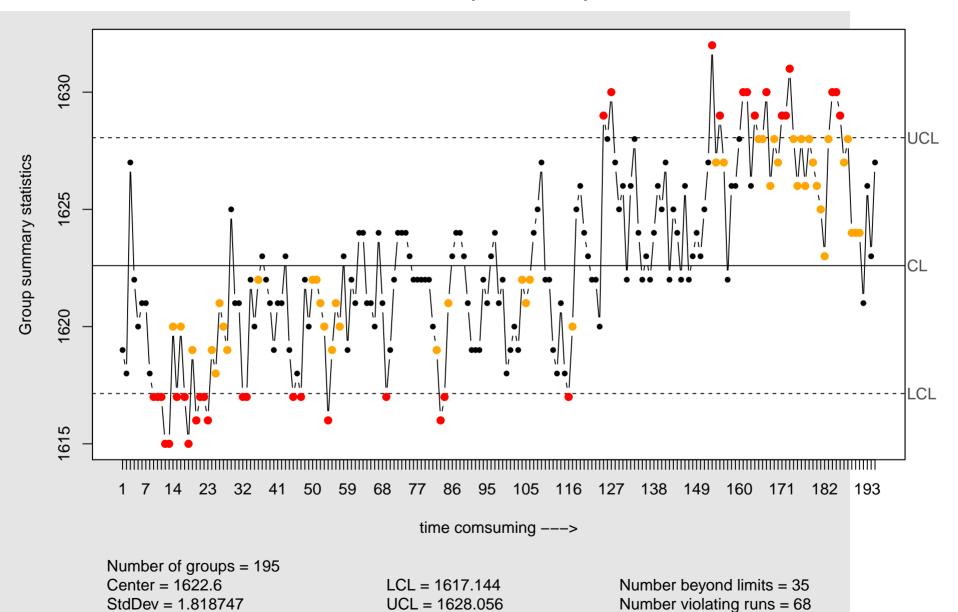


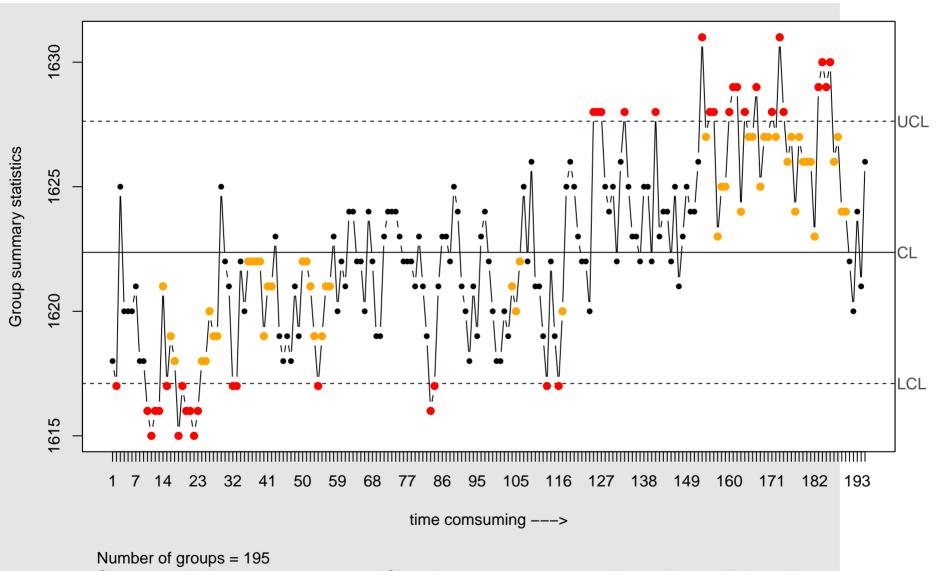
Center = 1623.174

StdDev = 1.837026

LCL = 1617.663 UCL = 1628.685 Number beyond limits = 33 Number violating runs = 92

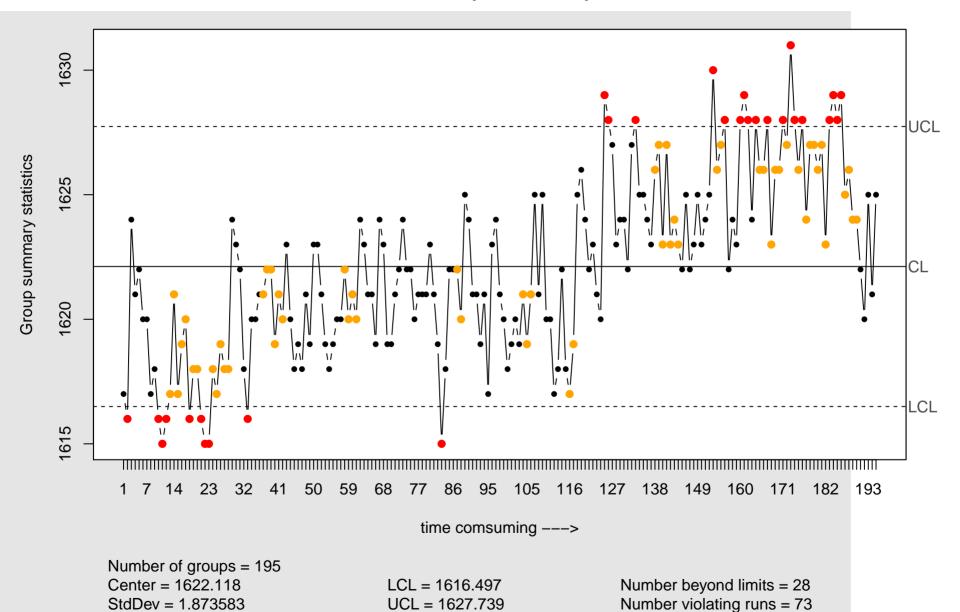


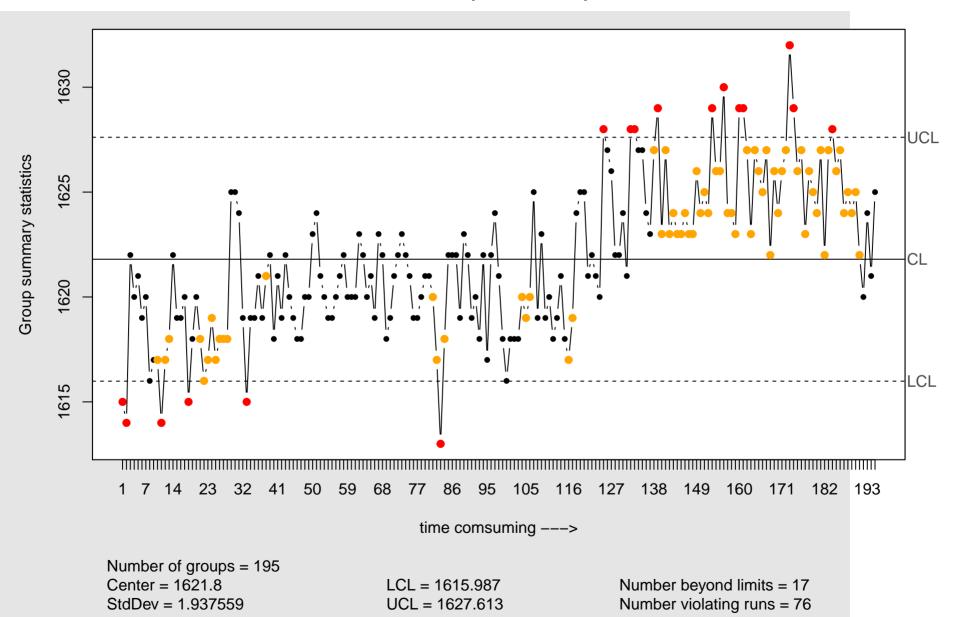


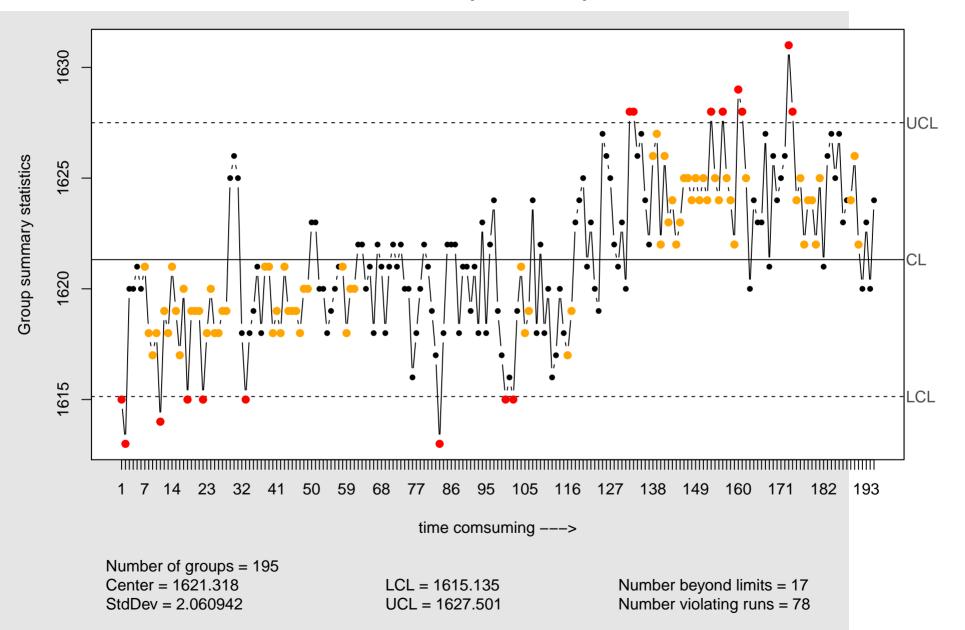


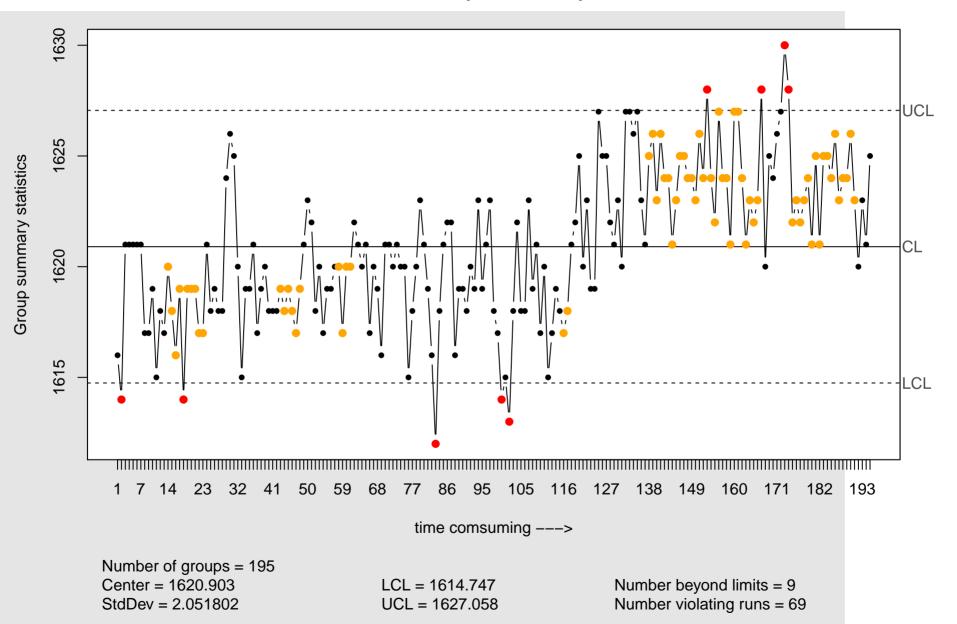
Number of groups = 195 Center = 1622.364 StdDev = 1.754771

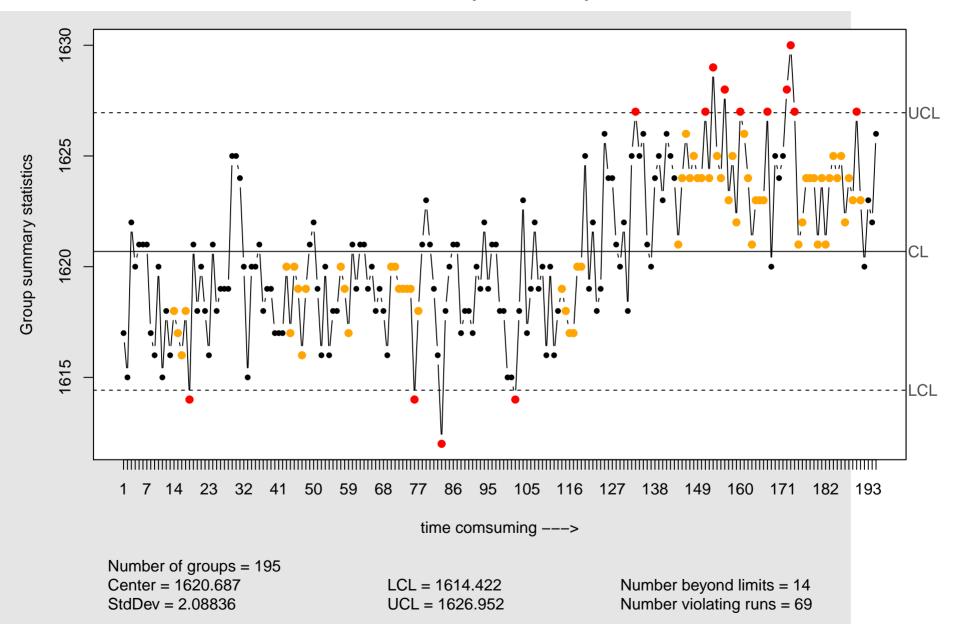
LCL = 1617.1 UCL = 1627.628 Number beyond limits = 39 Number violating runs = 76

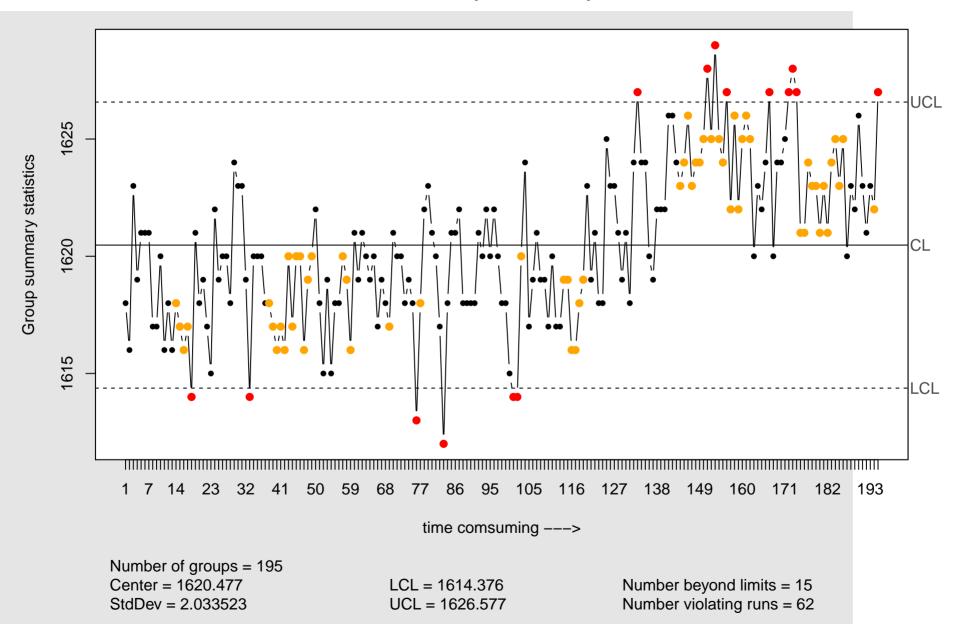


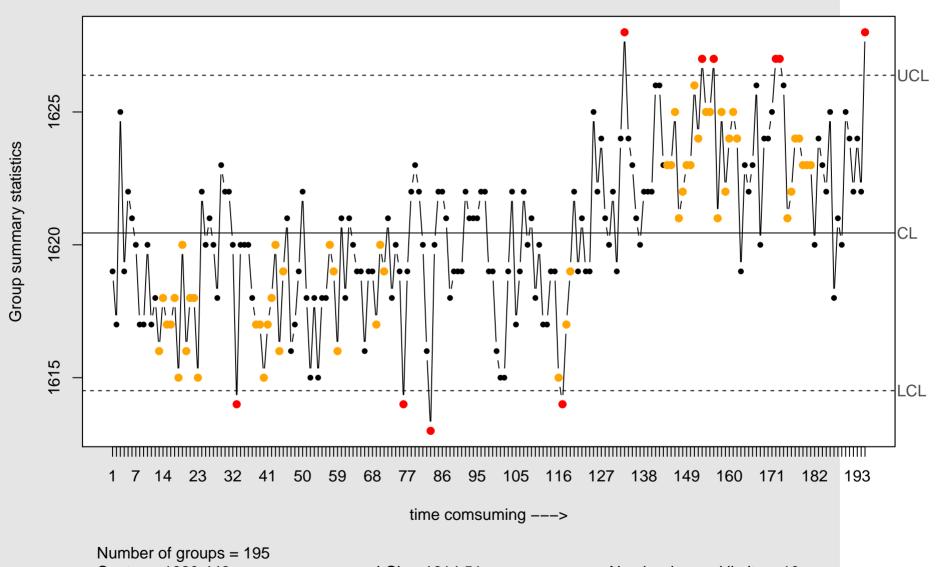








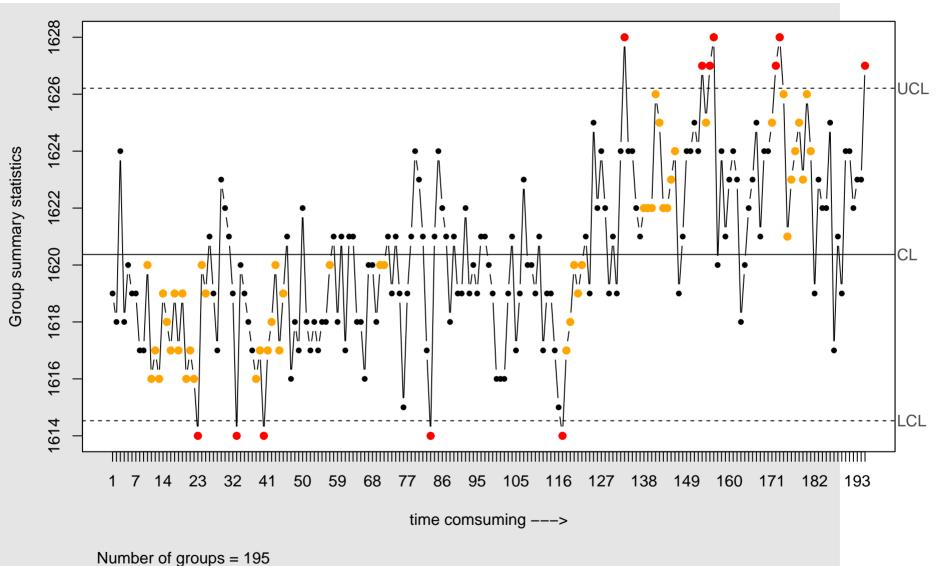




Number of groups = 195 Center = 1620.446 StdDev = 1.978687

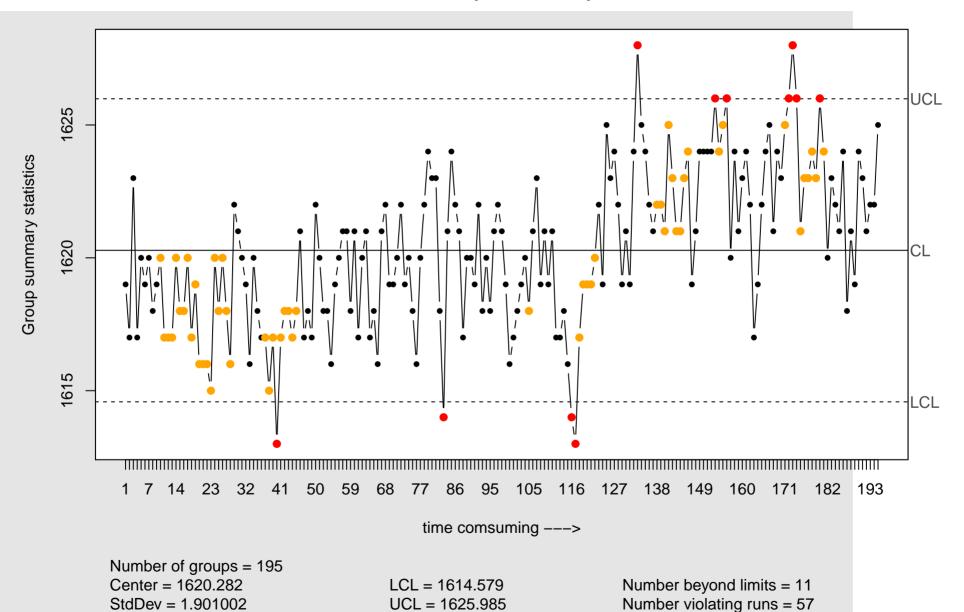
LCL = 1614.51 UCL = 1626.382

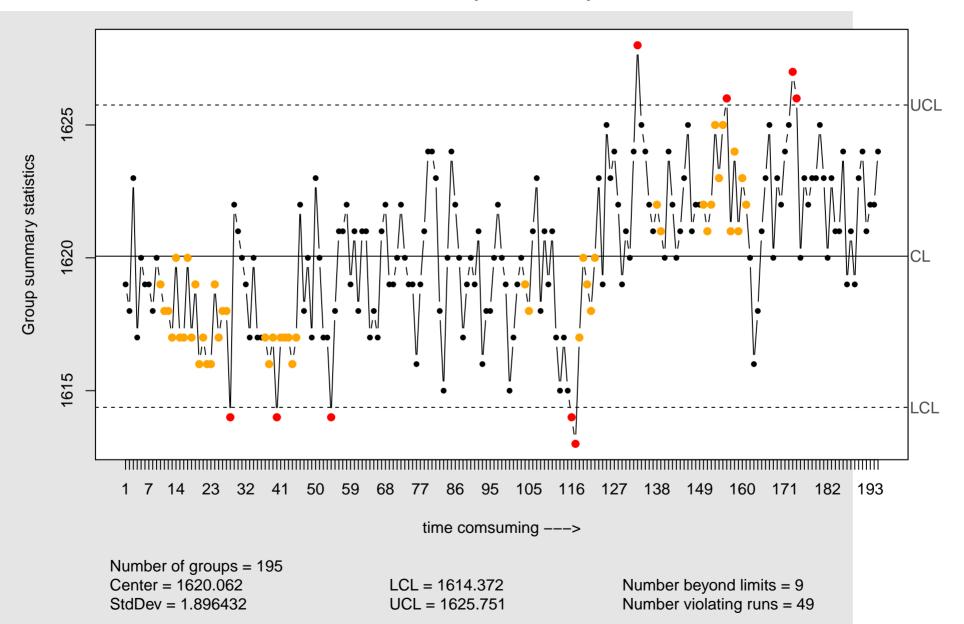
Number beyond limits = 10 Number violating runs = 55

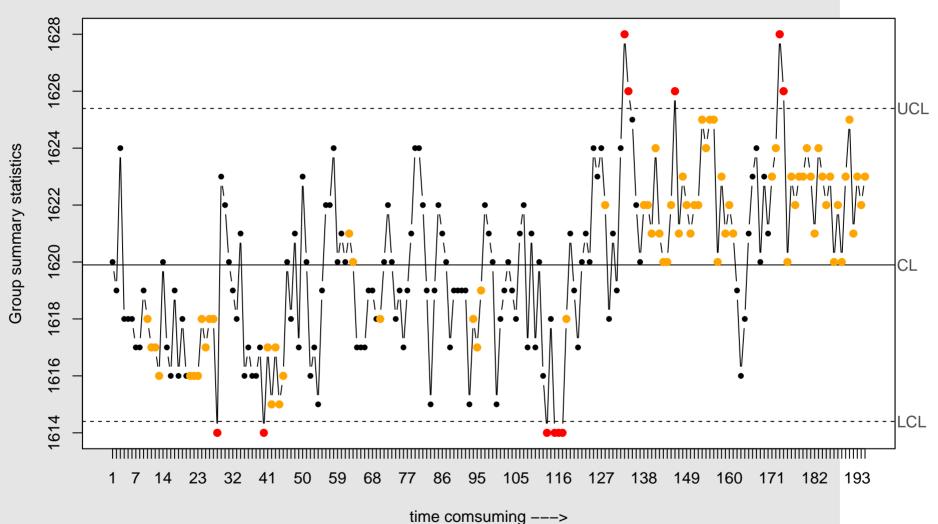


Number of groups = 195 Center = 1620.369 StdDev = 1.946699

LCL = 1614.529 UCL = 1626.209 Number beyond limits = 12 Number violating runs = 55



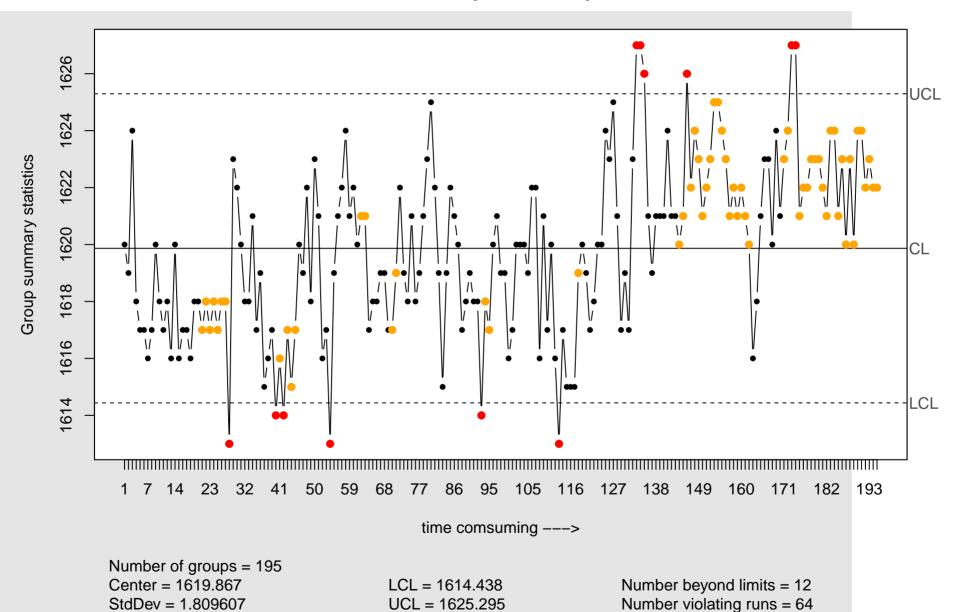


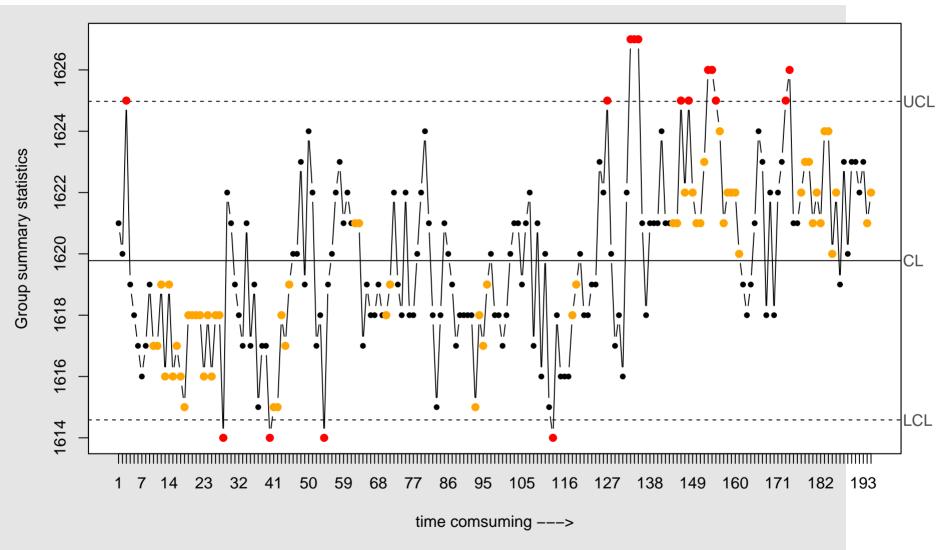


Number of groups = 195 Center = 1619.897 StdDev = 1.832456

LCL = 1614.4 UCL = 1625.395

Number beyond limits = 11 Number violating runs = 74





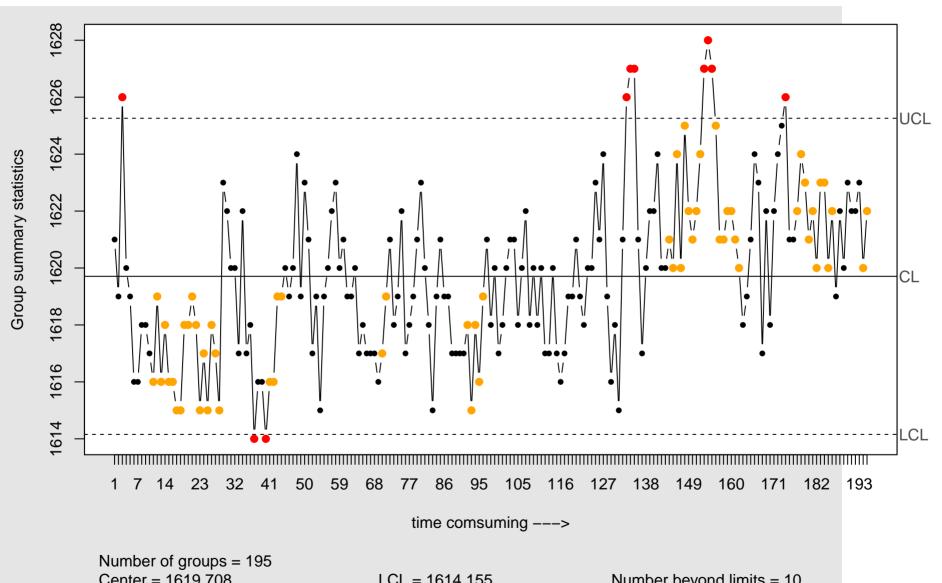
Number of groups = 195 Center = 1619.779

StdDev = 1.731922

LCL = 1614.584 UCL = 1624.975

Number violating runs = 64

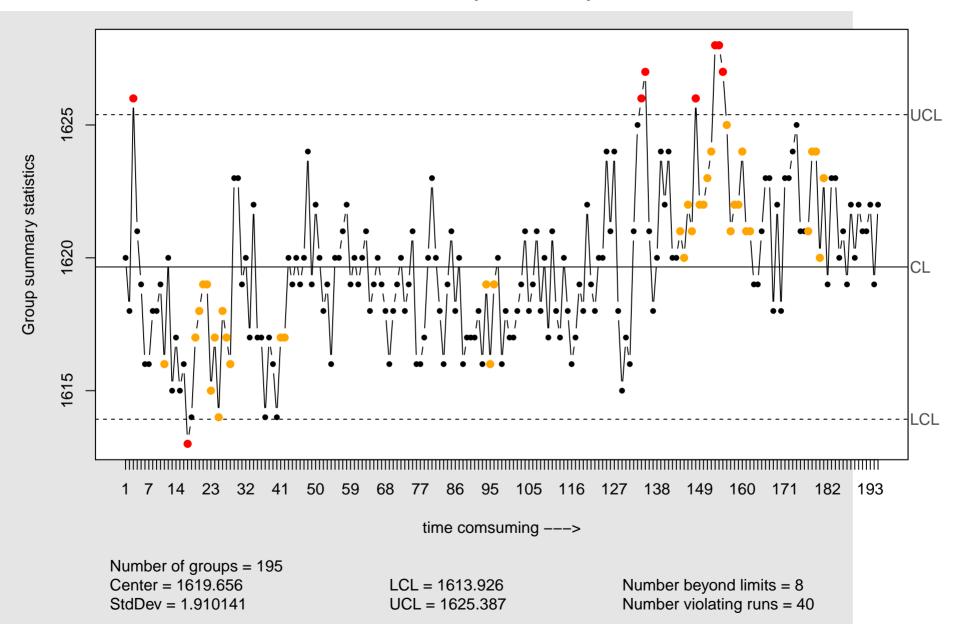
Number beyond limits = 16

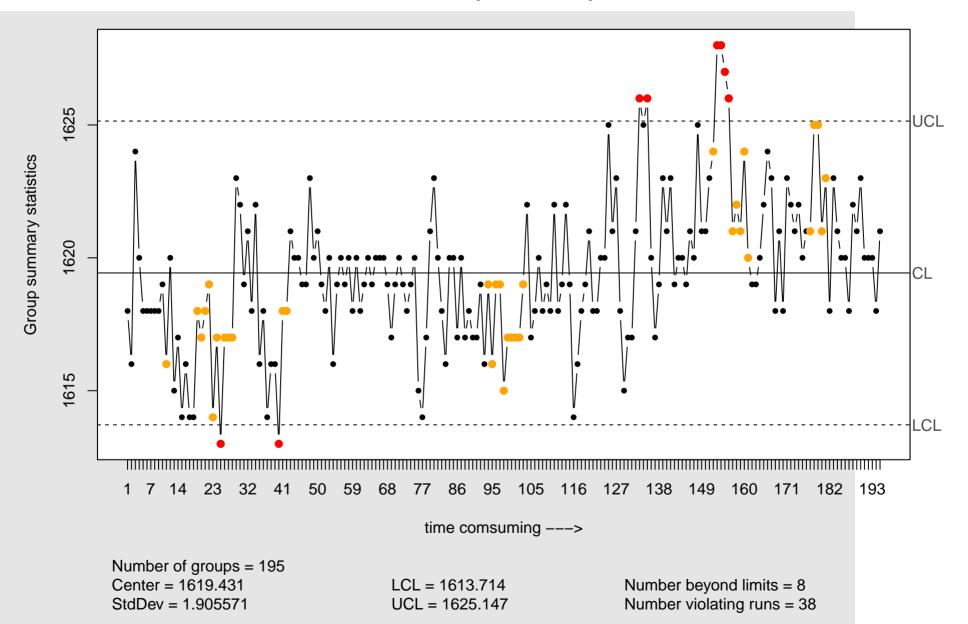


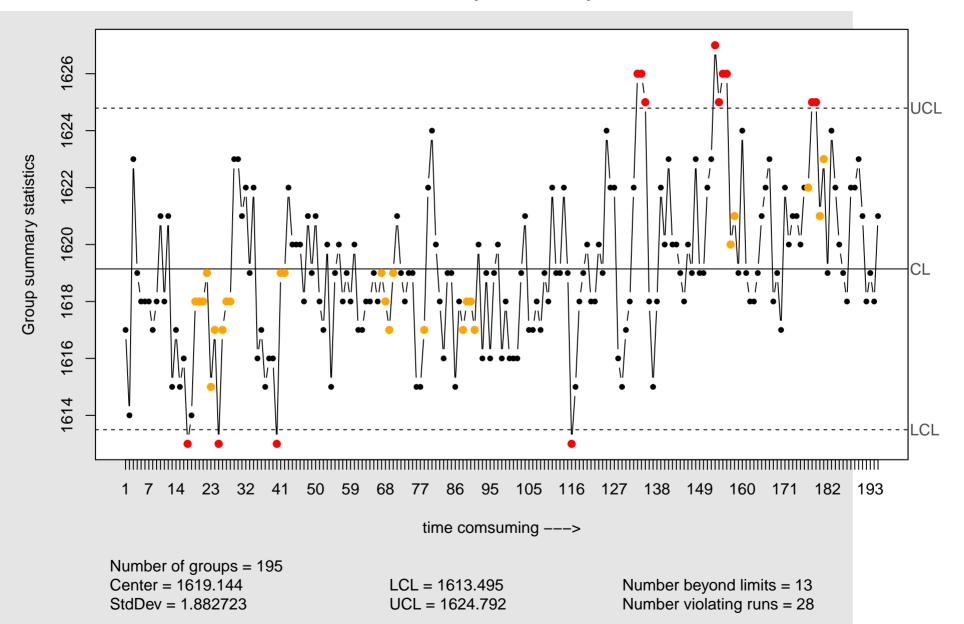
Center = 1619.708 StdDev = 1.850735

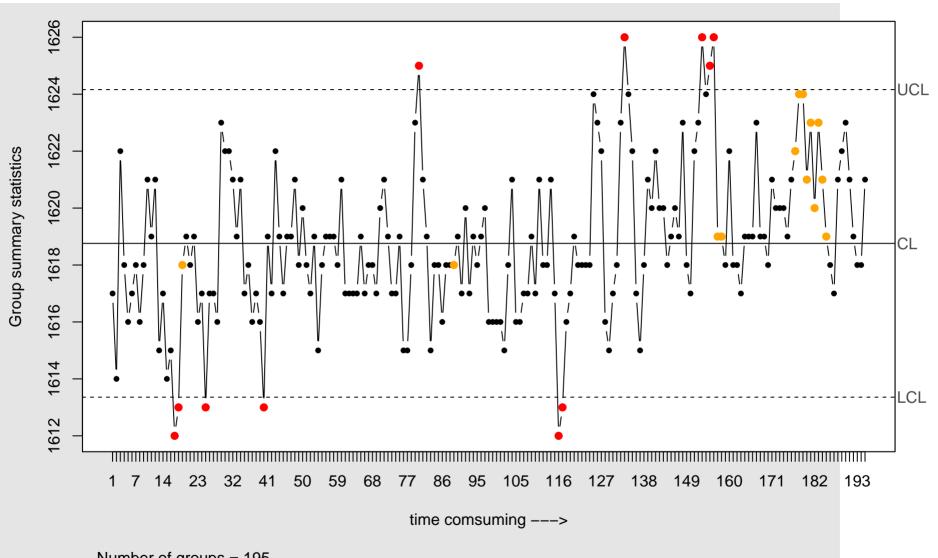
LCL = 1614.155 UCL = 1625.26

Number beyond limits = 10 Number violating runs = 60



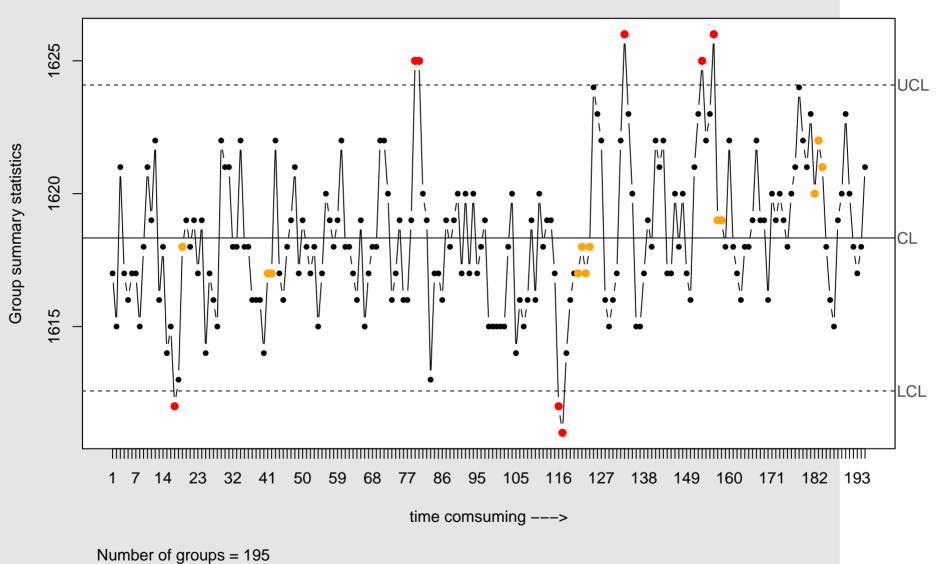






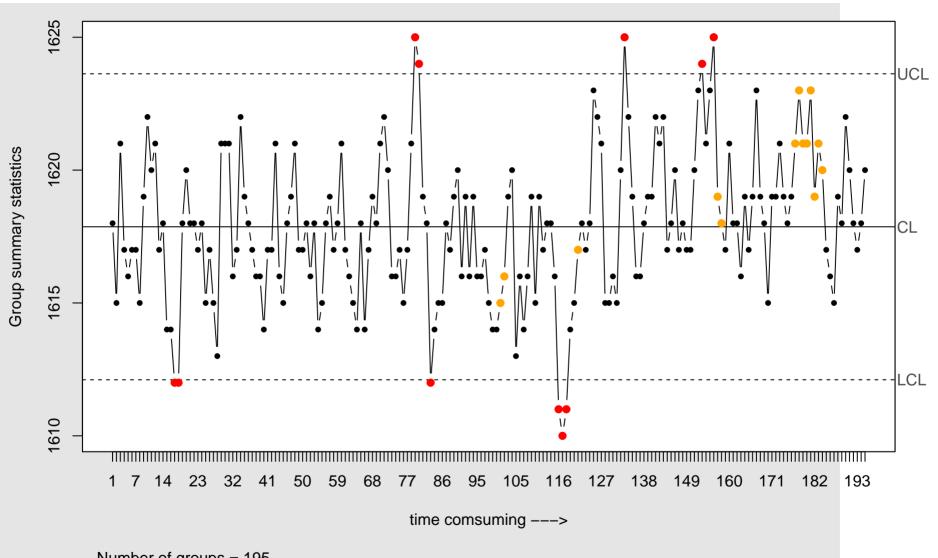
Number of groups = 195 Center = 1618.759 StdDev = 1.800468

LCL = 1613.358 UCL = 1624.16 Number beyond limits = 11 Number violating runs = 13



Number of groups = 195 Center = 1618.333 StdDev = 1.919281

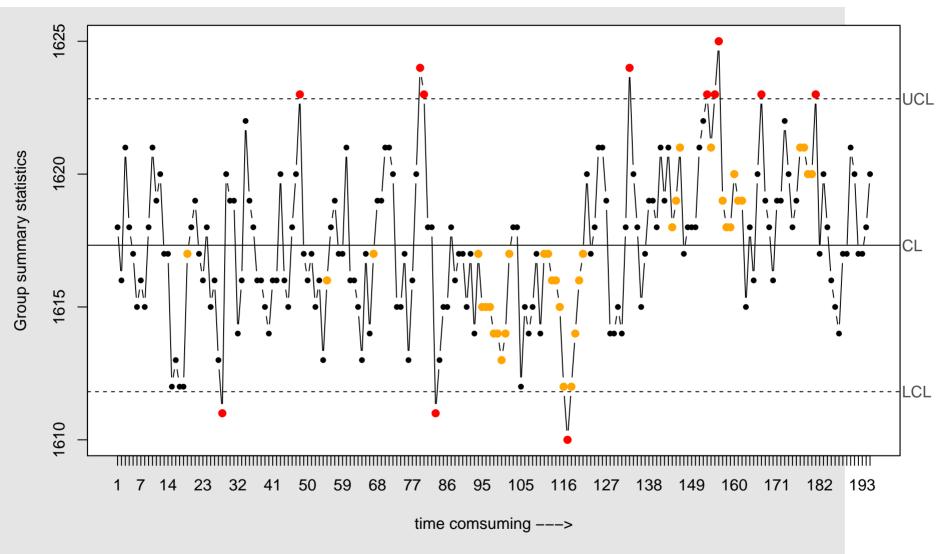
LCL = 1612.575 UCL = 1624.091 Number beyond limits = 8 Number violating runs = 12



Number of groups = 195 Center = 1617.867 StdDev = 1.919281

LCL = 1612.109 UCL = 1623.625

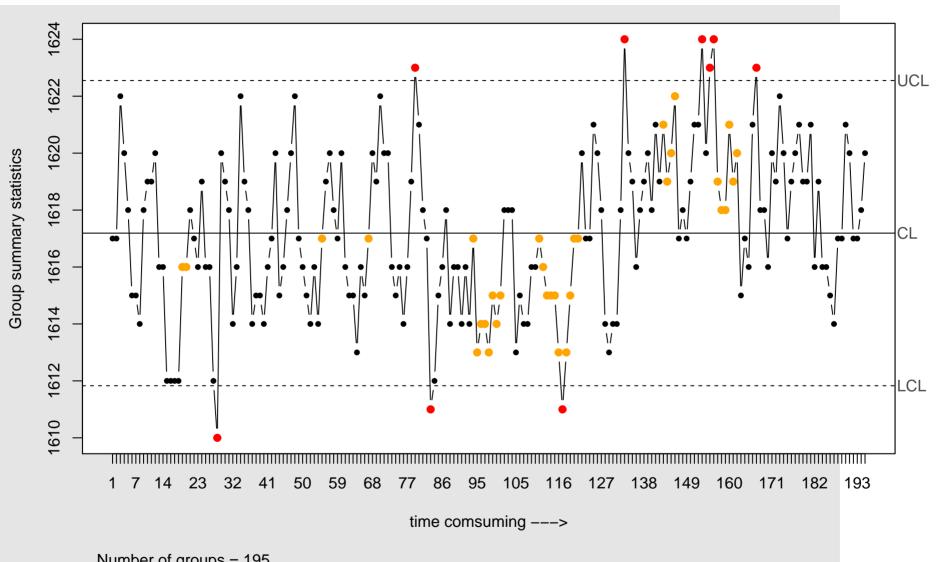
Number beyond limits = 11 Number violating runs = 13



Number of groups = 195 Center = 1617.323

StdDev = 1.837026

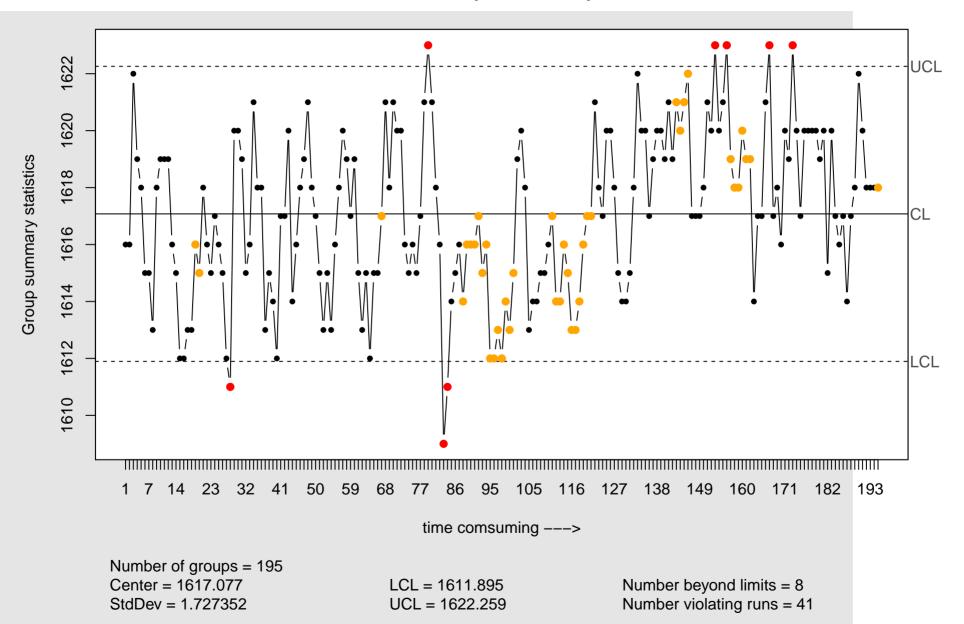
LCL = 1611.812 UCL = 1622.834 Number beyond limits = 12 Number violating runs = 40

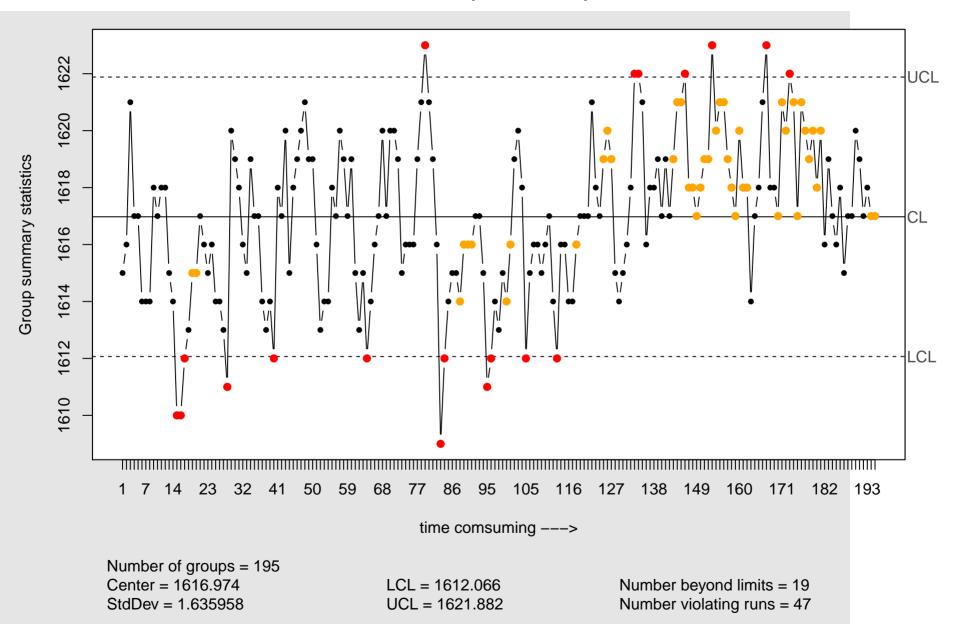


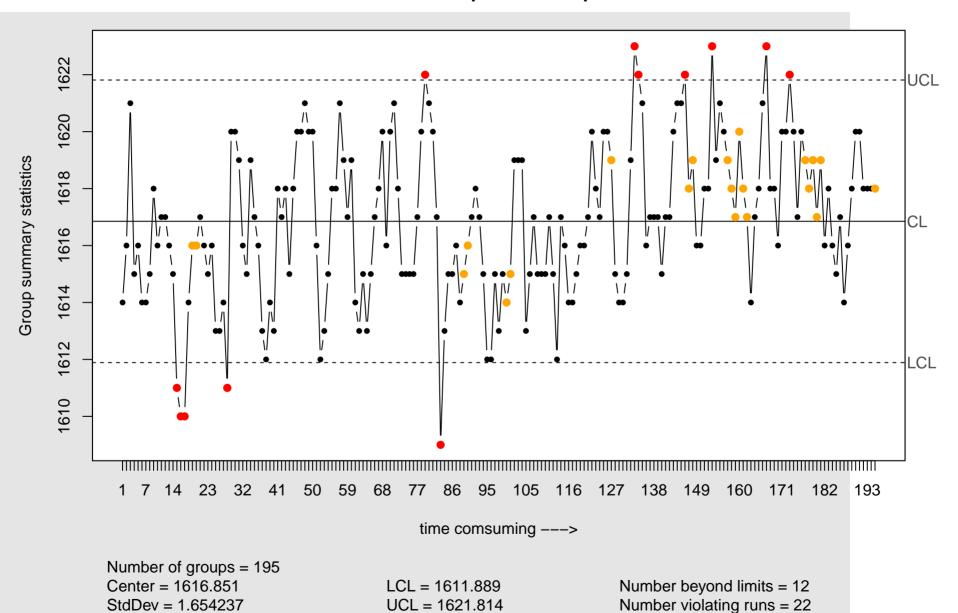
Number of groups = 195 Center = 1617.19 StdDev = 1.786759

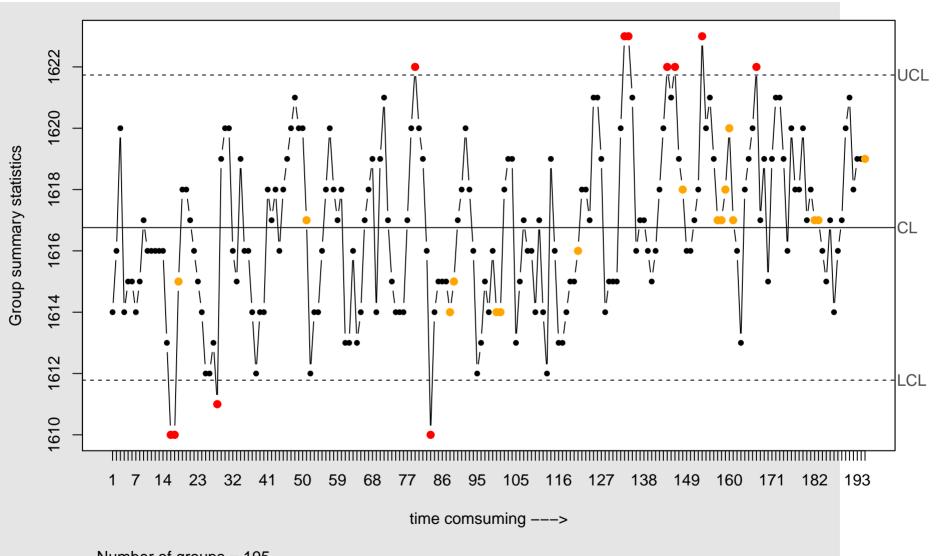
LCL = 1611.829 UCL = 1622.55

Number beyond limits = 9 Number violating runs = 34



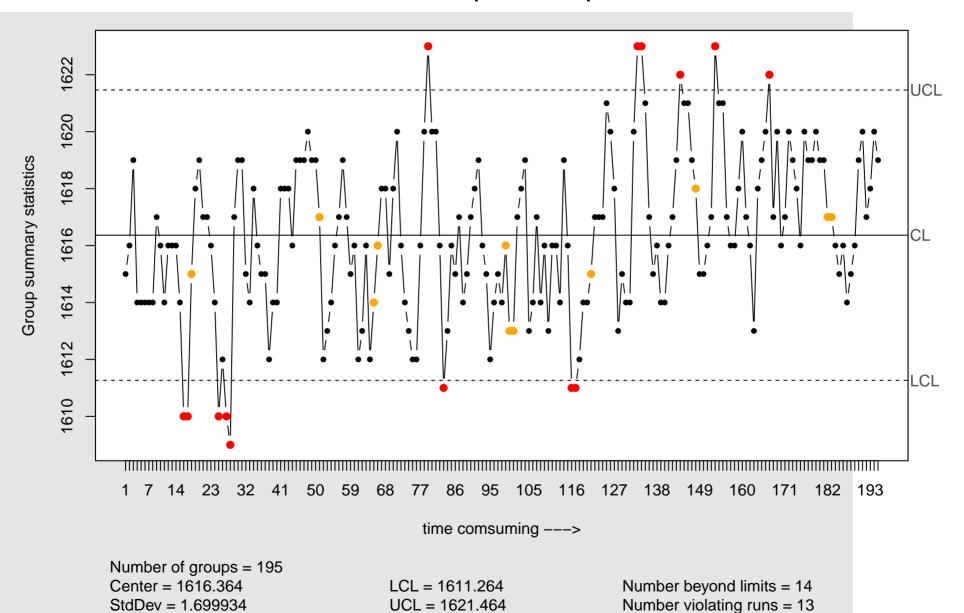


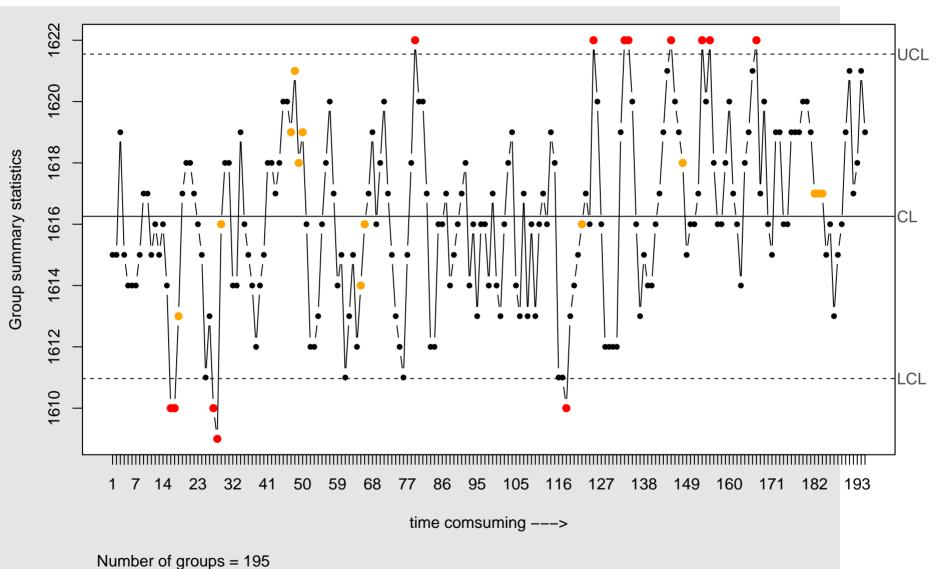




Number of groups = 195 Center = 1616.759 StdDev = 1.658807

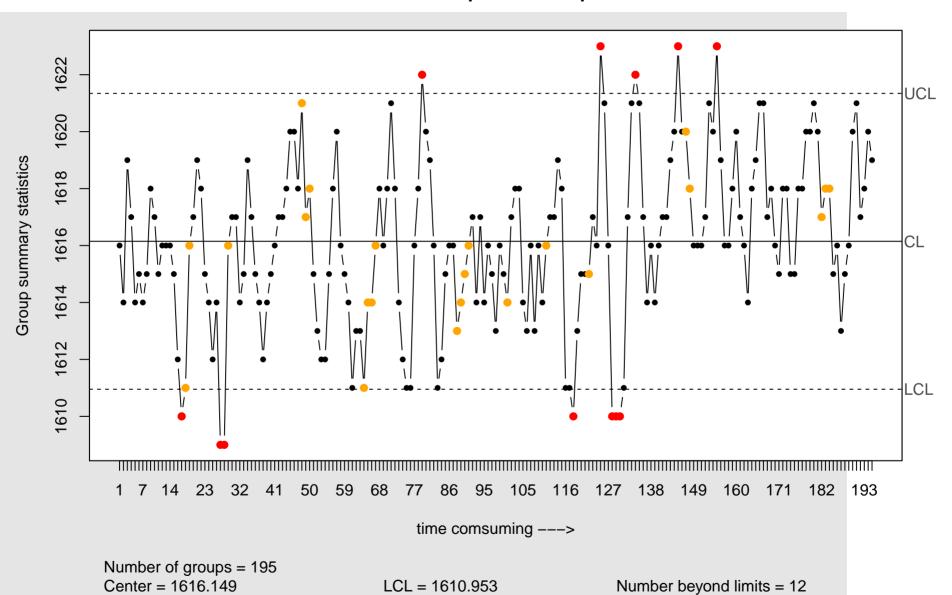
LCL = 1611.783 UCL = 1621.735 Number beyond limits = 11 Number violating runs = 19





Number of groups = 195 Center = 1616.256 StdDev = 1.76391

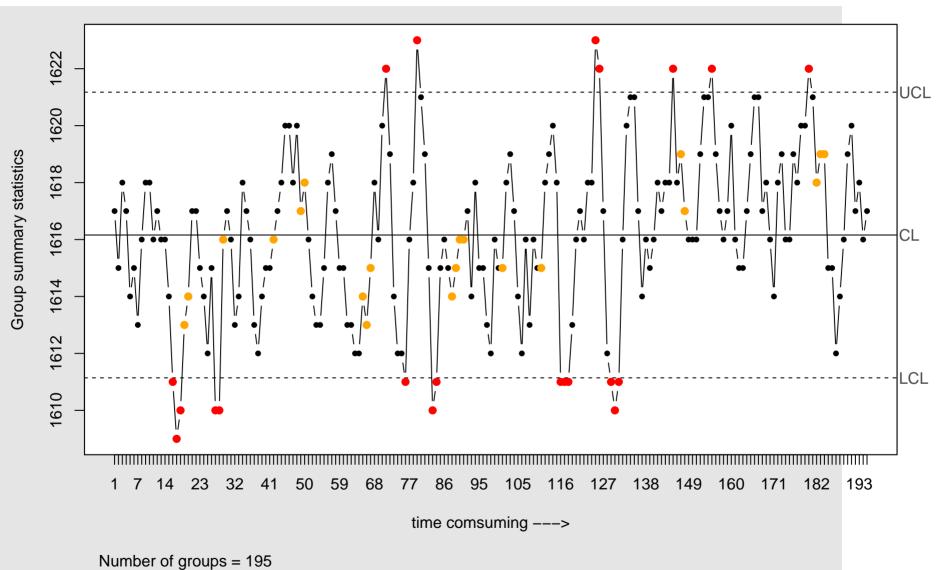
LCL = 1610.965 UCL = 1621.548 Number beyond limits = 13 Number violating runs = 14



UCL = 1621.344

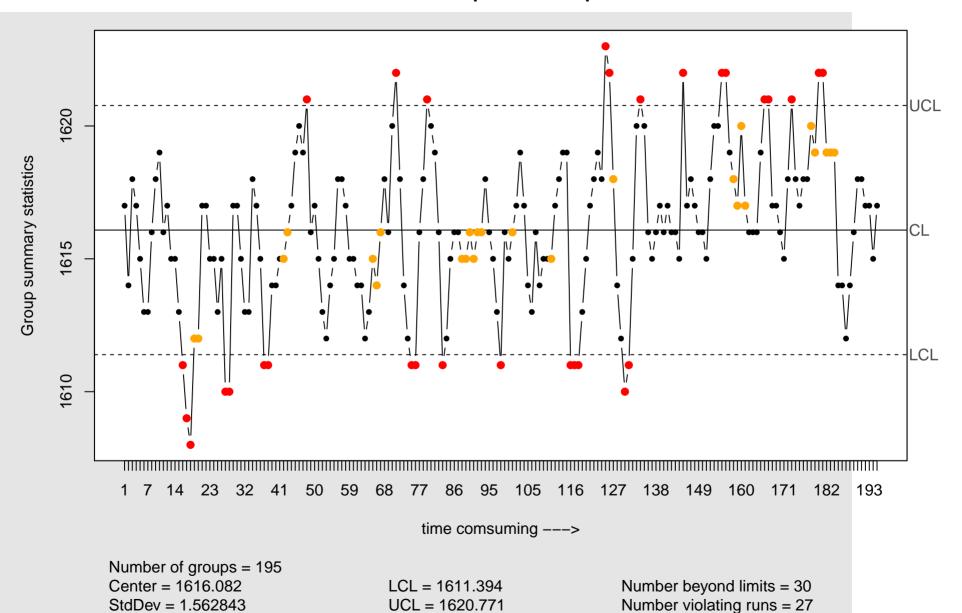
Number violating runs = 23

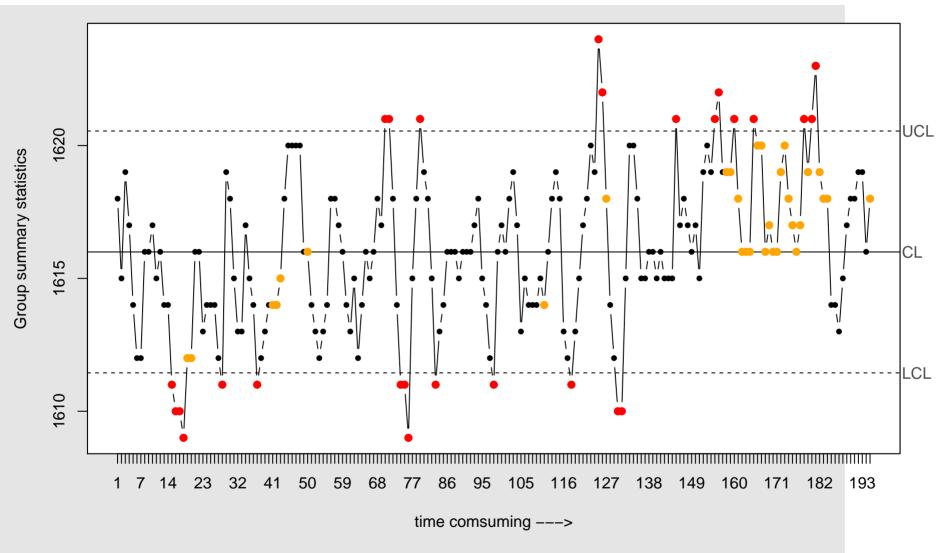
StdDev = 1.731922



Number of groups = 195 Center = 1616.159 StdDev = 1.672516

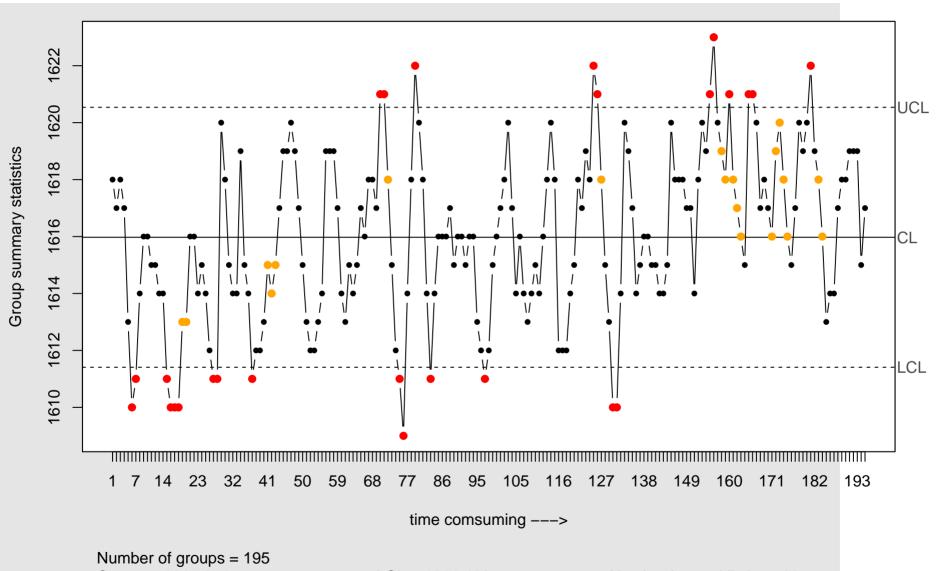
LCL = 1611.141 UCL = 1621.177 Number beyond limits = 21 Number violating runs = 20





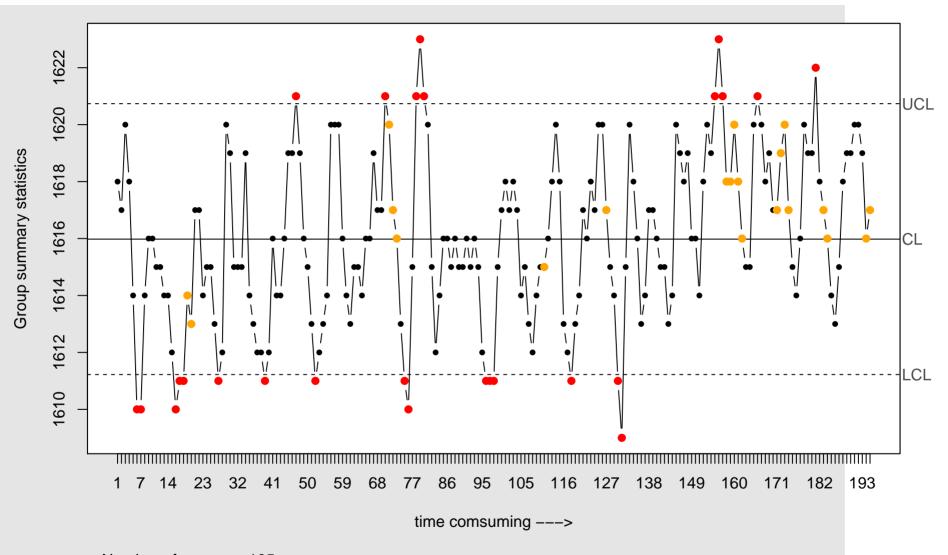
Number of groups = 195 Center = 1615.995 StdDev = 1.517146

LCL = 1611.443 UCL = 1620.546 Number beyond limits = 27 Number violating runs = 36



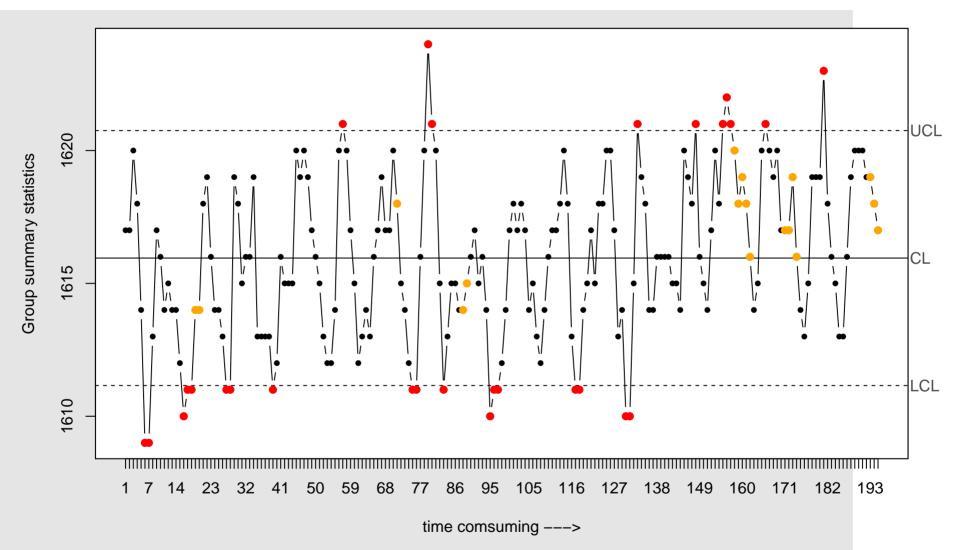
Number of groups = 195 Center = 1615.974 StdDev = 1.521715

LCL = 1611.409 UCL = 1620.54 Number beyond limits = 26 Number violating runs = 23



Number of groups = 195 Center = 1615.979 StdDev = 1.585691

LCL = 1611.222 UCL = 1620.737 Number beyond limits = 26 Number violating runs = 22



Number of groups = 195

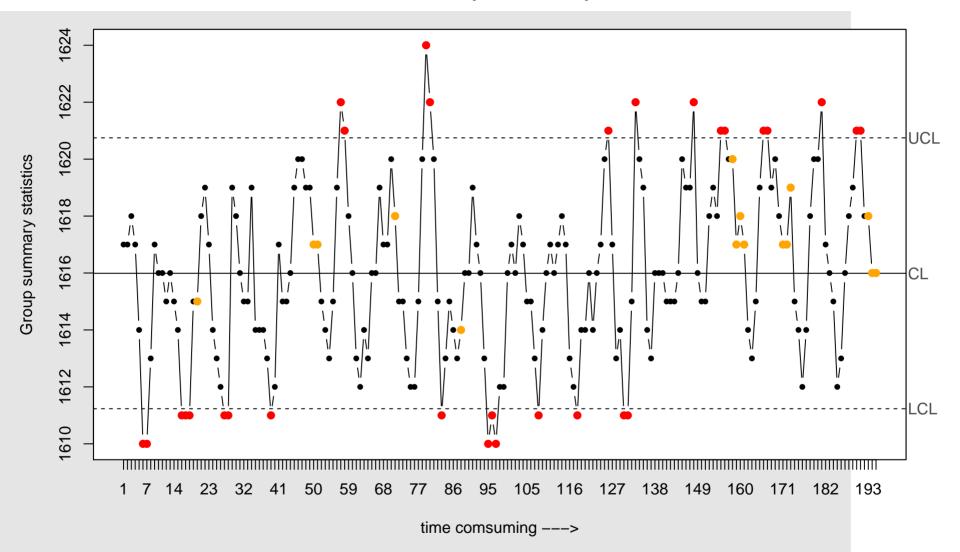
LCL = 1611.156

Number beyond limits = 28

Center = 1615.954 StdDev = 1.5994

UCL = 1620.752

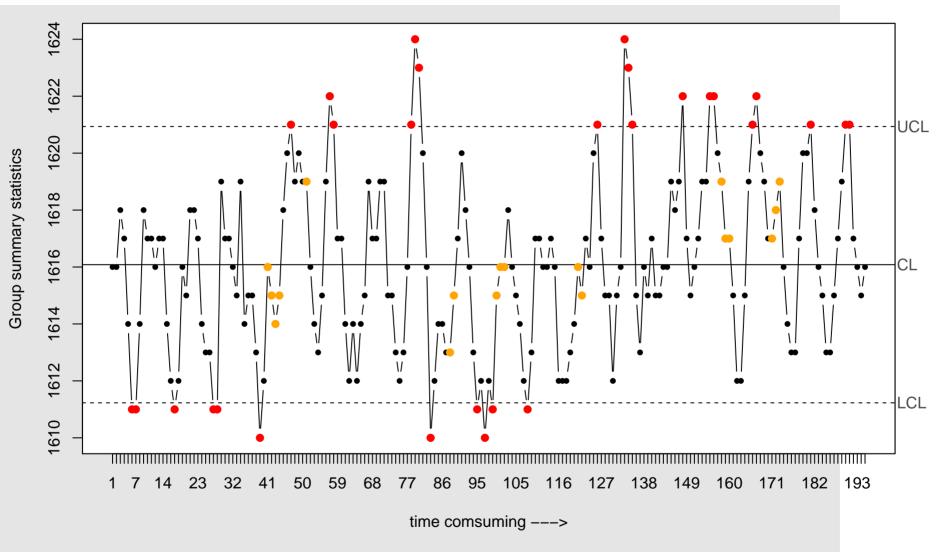
Number violating runs = 19



Number of groups = 195 Center = 1615.99

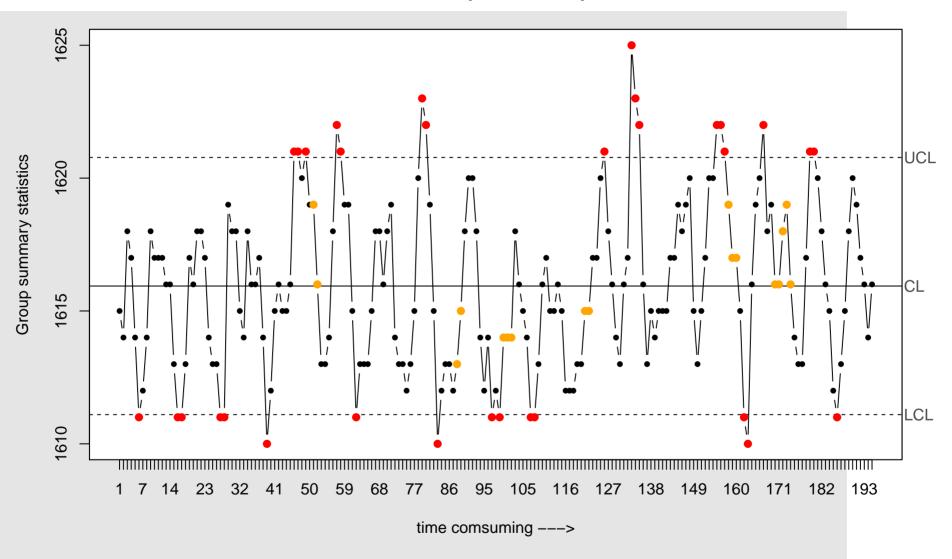
StdDev = 1.585691

LCL = 1611.233 UCL = 1620.747 Number beyond limits = 30 Number violating runs = 15



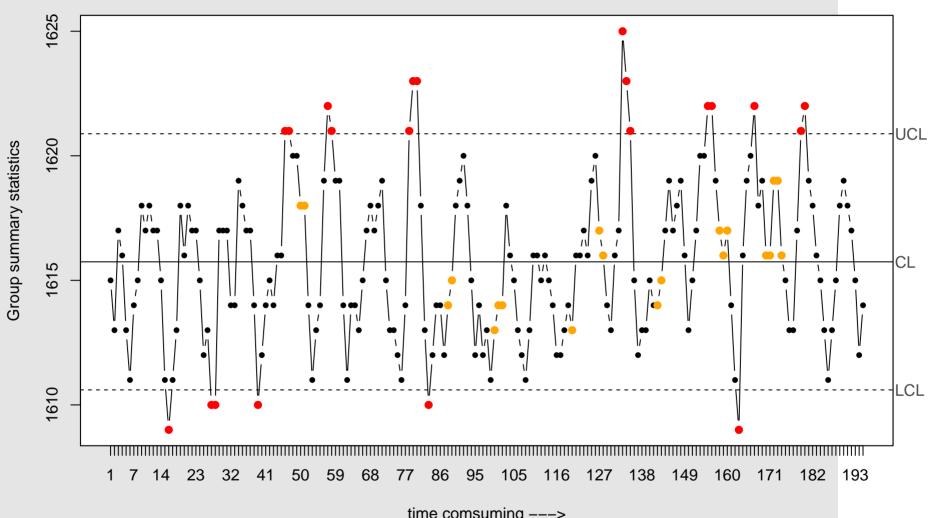
Number of groups = 195 Center = 1616.082 StdDev = 1.617679

LCL = 1611.229 UCL = 1620.935 Number beyond limits = 29 Number violating runs = 19



Number of groups = 195 Center = 1615.938 StdDev = 1.61311

LCL = 1611.099 UCL = 1620.778 Number beyond limits = 32 Number violating runs = 17

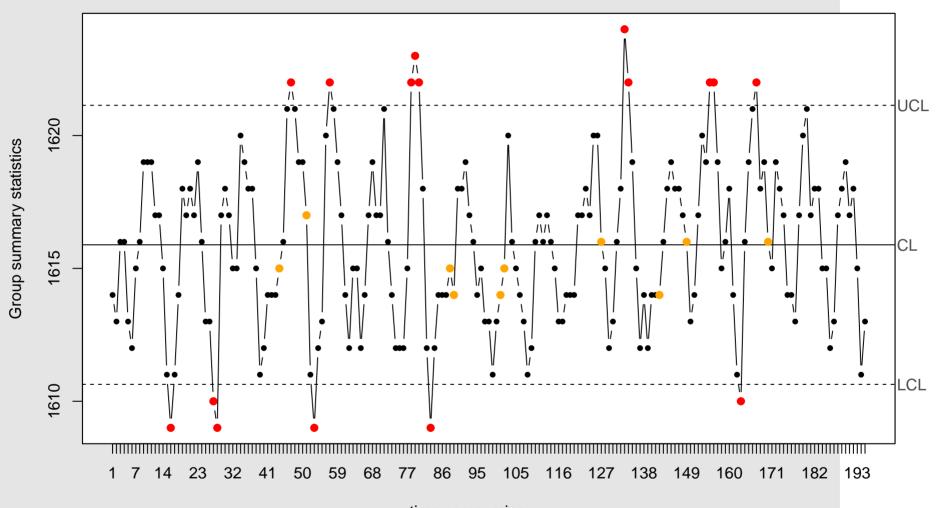


time comsuming --->

Number of groups = 195 Center = 1615.744 StdDev = 1.713643

LCL = 1610.603 UCL = 1620.885

Number beyond limits = 21 Number violating runs = 20

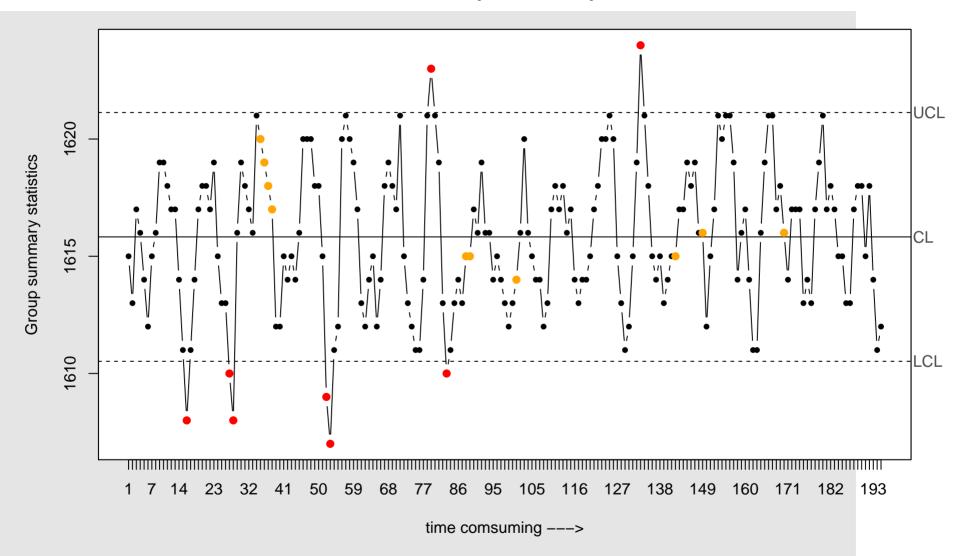


time comsuming --->

Number of groups = 195 Center = 1615.887 StdDev = 1.750201

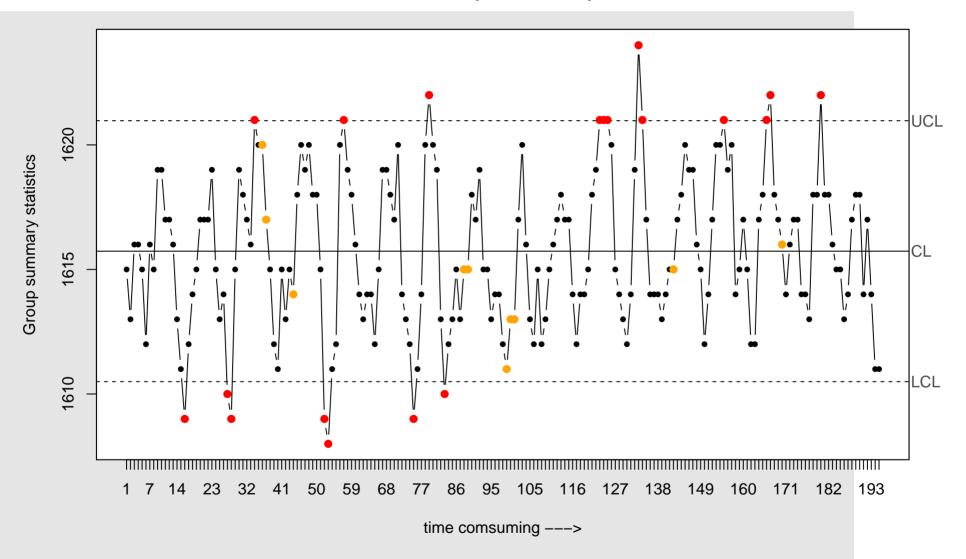
LCL = 1610.637 UCL = 1621.138

Number beyond limits = 16 Number violating runs = 10



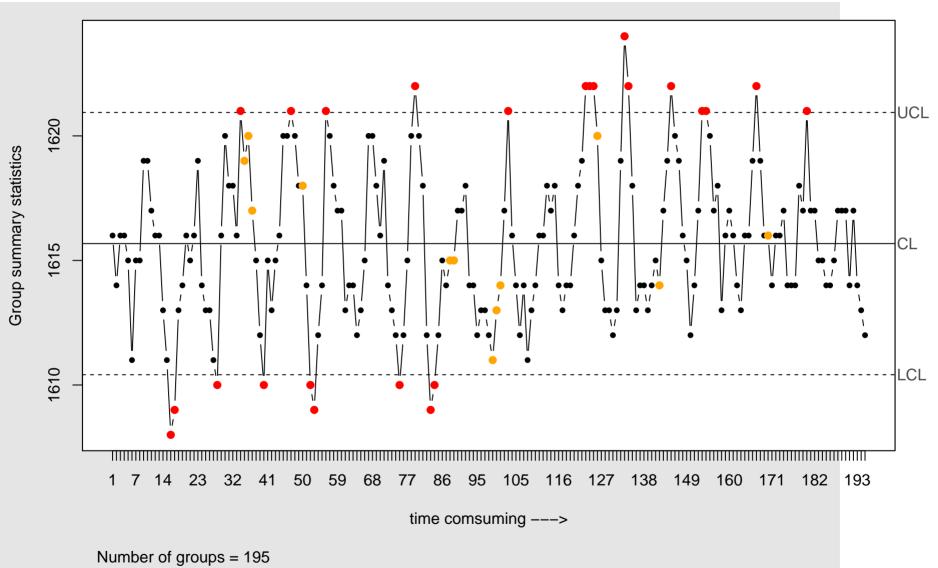
Number of groups = 195 Center = 1615.826 StdDev = 1.76848

LCL = 1610.52 UCL = 1621.131 Number beyond limits = 8 Number violating runs = 10



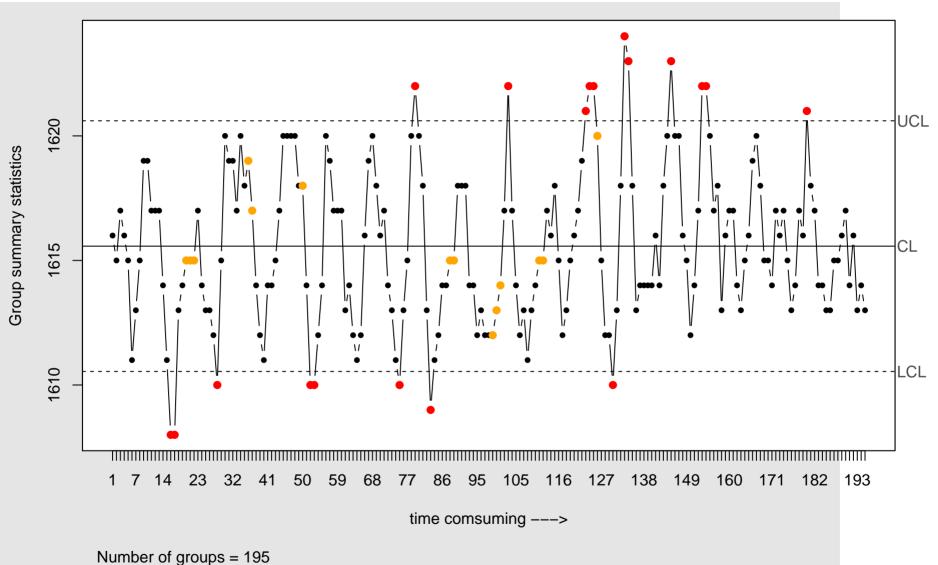
Number of groups = 195 Center = 1615.733 StdDev = 1.745631

LCL = 1610.496 UCL = 1620.97 Number beyond limits = 19 Number violating runs = 10



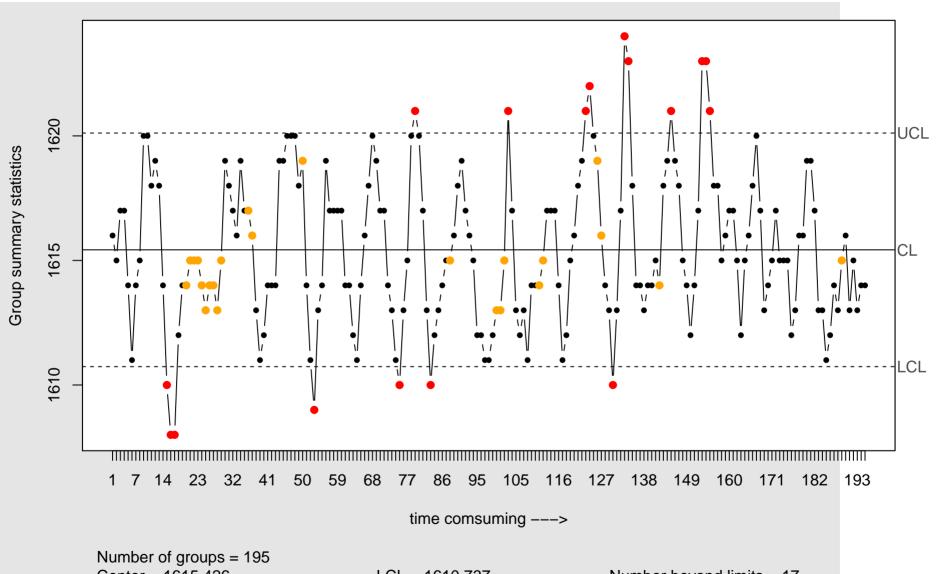
Number of groups = 195 Center = 1615.677 StdDev = 1.754771

LCL = 1610.413 UCL = 1620.941 Number beyond limits = 24 Number violating runs = 12



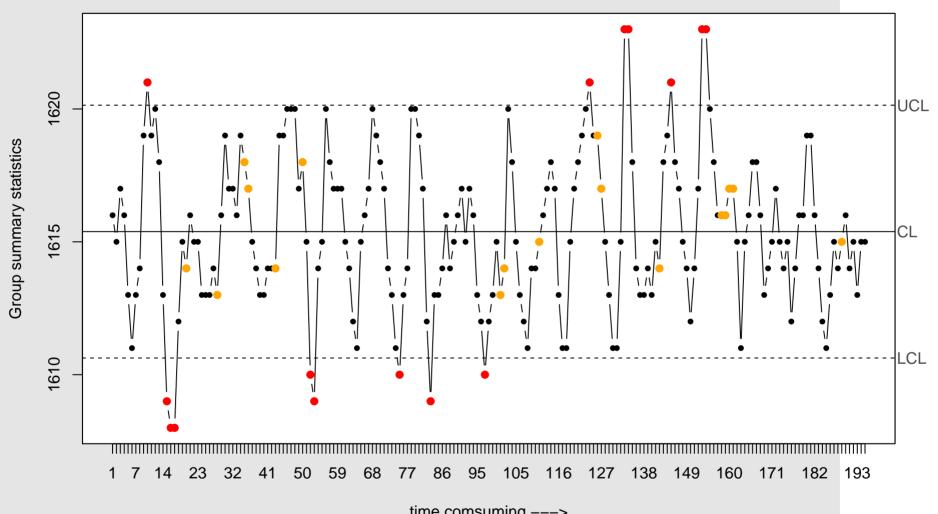
Number of groups = 195 Center = 1615.574 StdDev = 1.677086

LCL = 1610.543 UCL = 1620.606 Number beyond limits = 19 Number violating runs = 14



Number of groups = 195 Center = 1615.426 StdDev = 1.562843

LCL = 1610.737 UCL = 1620.114 Number beyond limits = 17 Number violating runs = 23

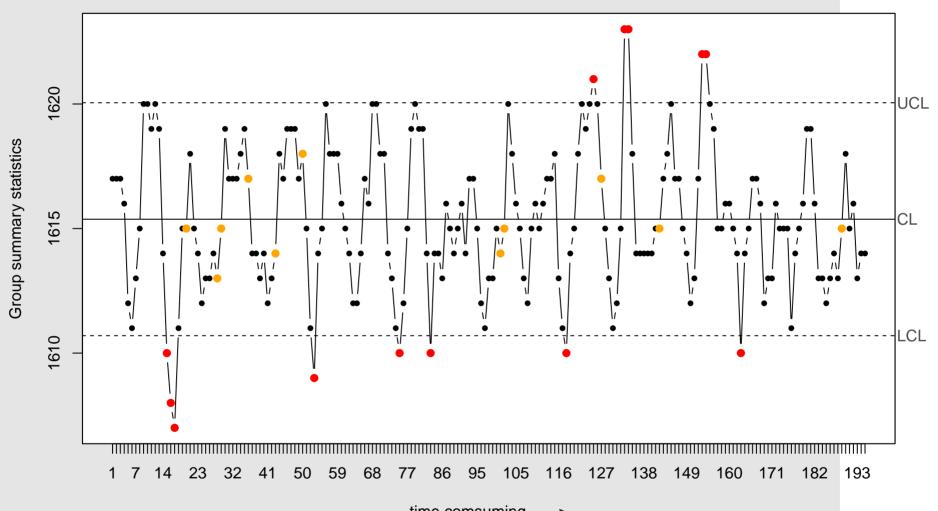


time comsuming --->

Number of groups = 195 Center = 1615.385 StdDev = 1.585691

LCL = 1610.628 UCL = 1620.142

Number beyond limits = 15 Number violating runs = 17

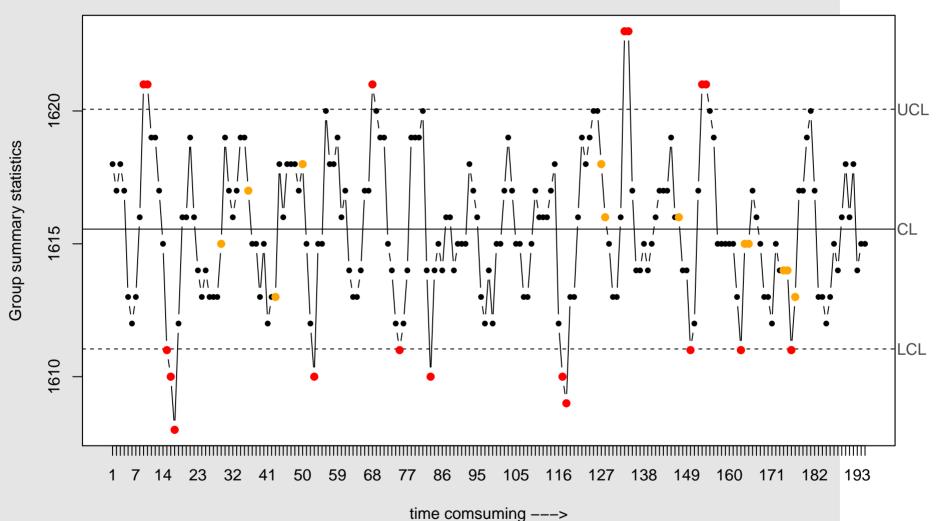


time comsuming --->

Number of groups = 195 Center = 1615.374 StdDev = 1.558273

LCL = 1610.7 UCL = 1620.049

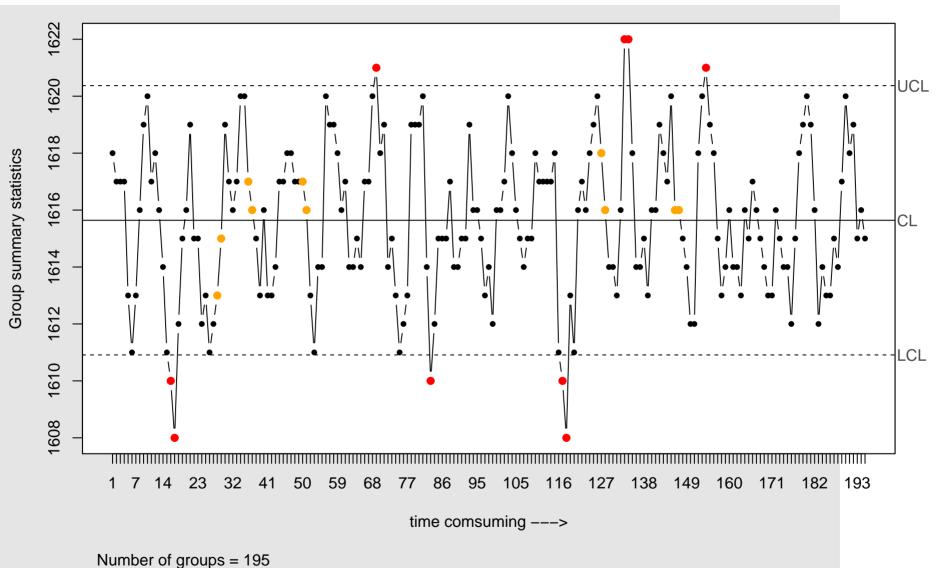
Number beyond limits = 13 Number violating runs = 11



Number of groups = 195 Center = 1615.554 StdDev = 1.503436

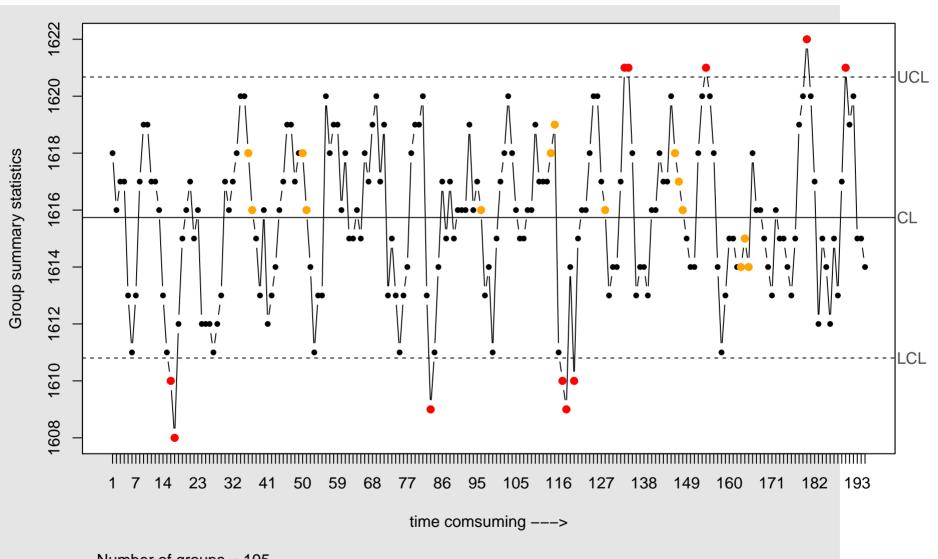
LCL = 1611.044 UCL = 1620.064

Number beyond limits = 18 Number violating runs = 14



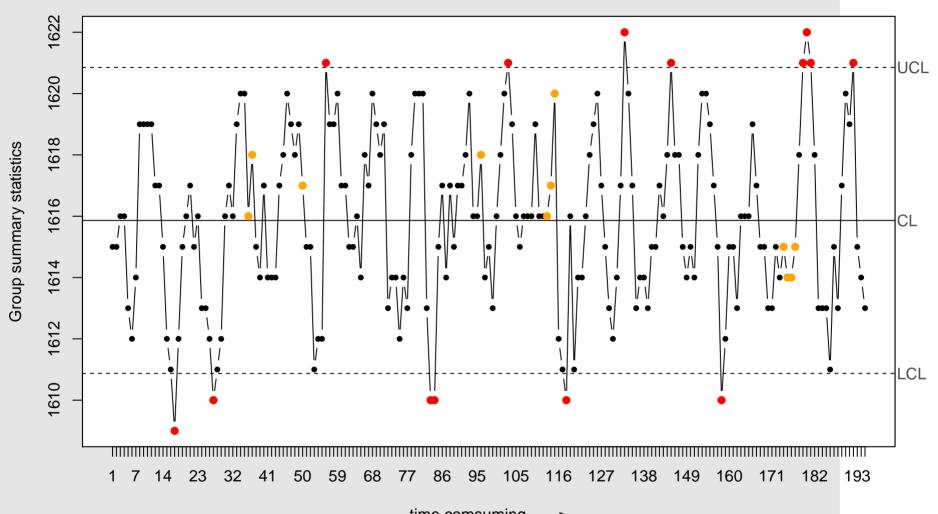
Number of groups = 195 Center = 1615.641 StdDev = 1.576552

LCL = 1610.911 UCL = 1620.371 Number beyond limits = 9 Number violating runs = 10



Number of groups = 195 Center = 1615.738 StdDev = 1.645098

LCL = 1610.803 UCL = 1620.674 Number beyond limits = 11 Number violating runs = 14

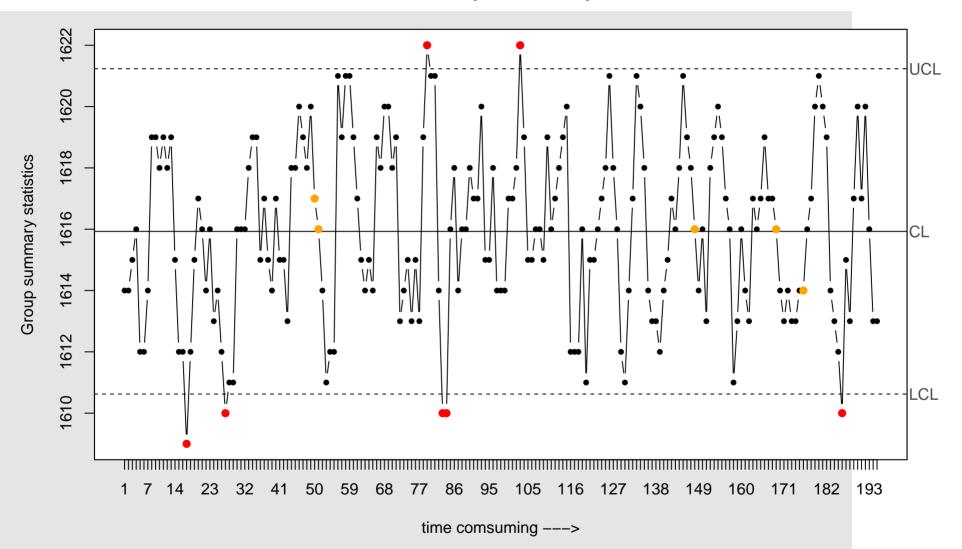


time comsuming --->

Number of groups = 195 Center = 1615.862 StdDev = 1.663376

LCL = 1610.871 UCL = 1620.852

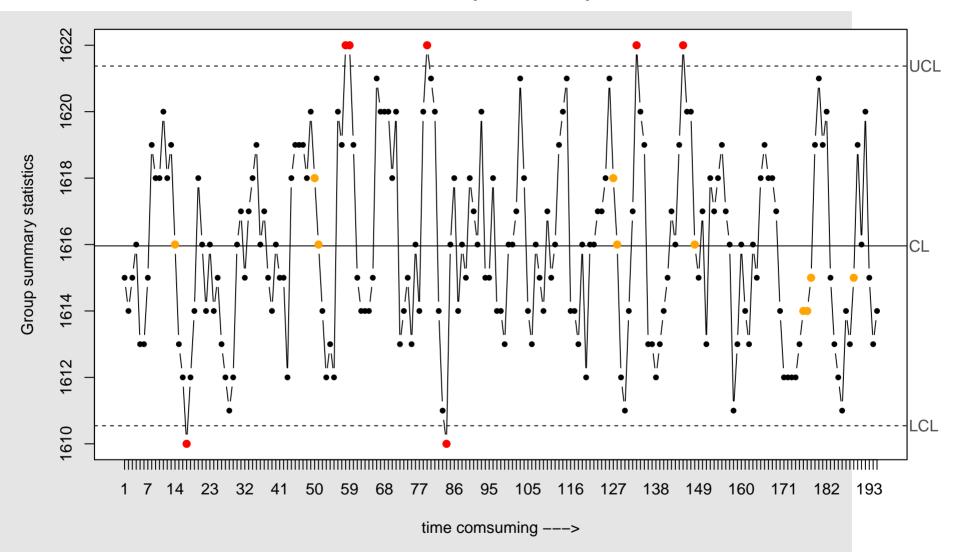
Number beyond limits = 14 Number violating runs = 11



Number of groups = 195 Center = 1615.928

StdDev = 1.76848

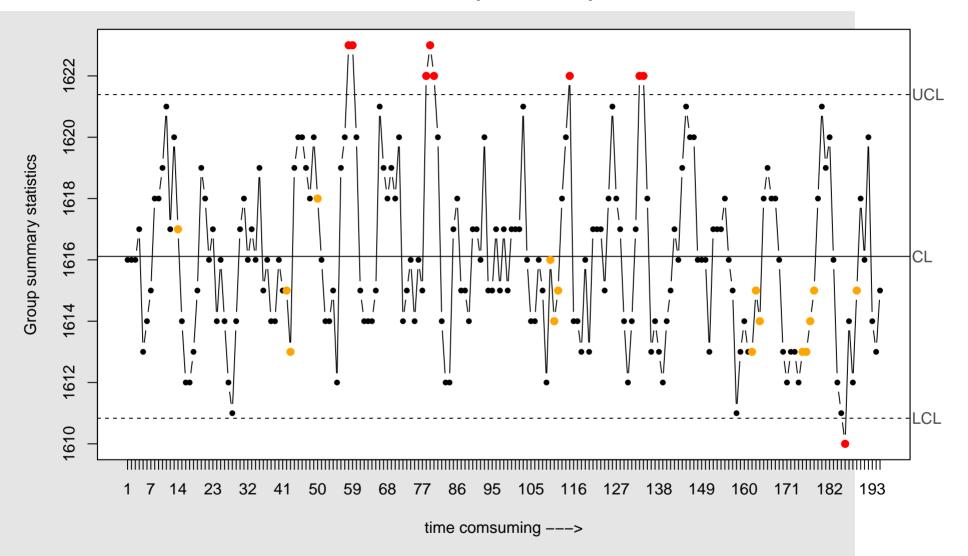
LCL = 1610.623 UCL = 1621.234 Number beyond limits = 7 Number violating runs = 5



Number of groups = 195 Center = 1615.959 StdDev = 1.805038

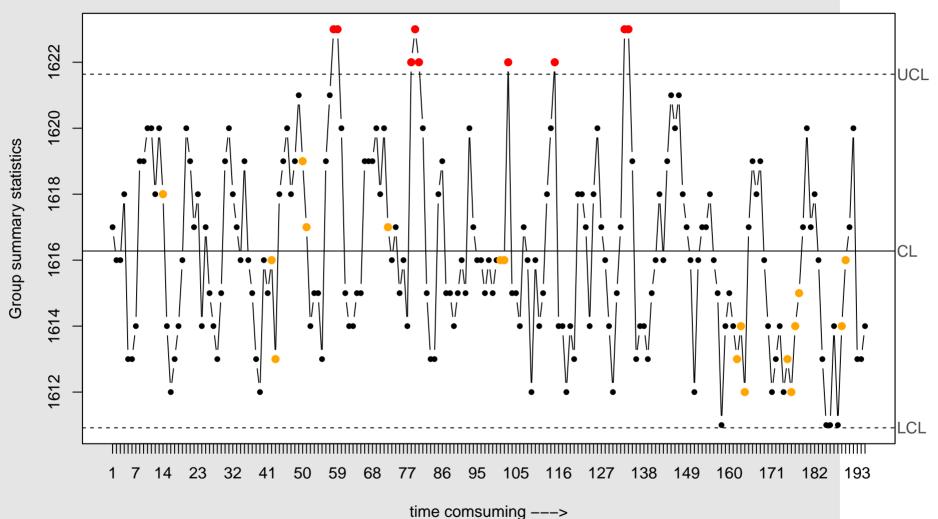
LCL = 1610.544 UCL = 1621.374

Number beyond limits = 7 Number violating runs = 10



Number of groups = 195 Center = 1616.113 StdDev = 1.75934

LCL = 1610.835 UCL = 1621.391 Number beyond limits = 9 Number violating runs = 15



•

Number of groups = 195 Center = 1616.277

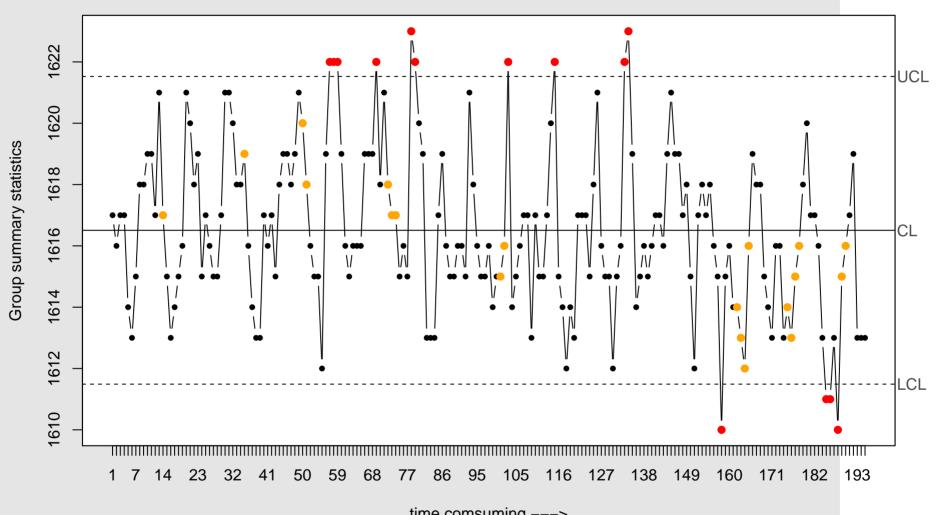
StdDev = 1.786759

LCL = 1610.917

UCL = 1621.637

Number beyond limits = 9

Number violating runs = 17

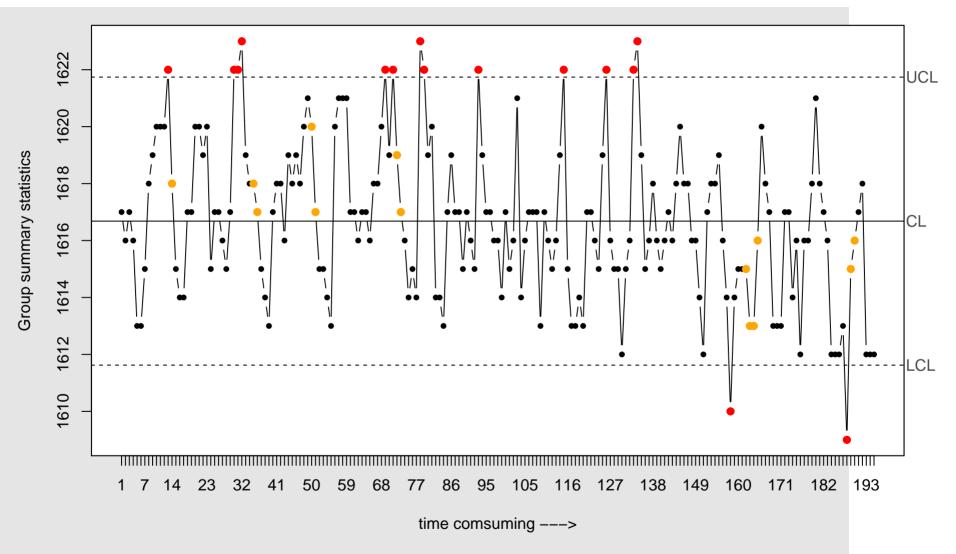


time comsuming --->

Number of groups = 195 Center = 1616.508 StdDev = 1.672516

LCL = 1611.49 UCL = 1621.525

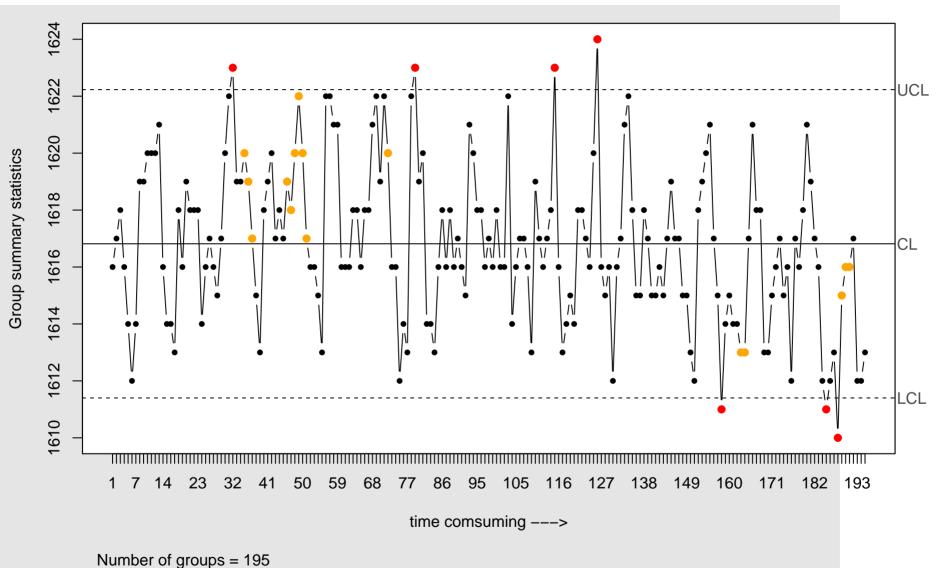
Number beyond limits = 14 Number violating runs = 19



Number of groups = 195 Center = 1616.682

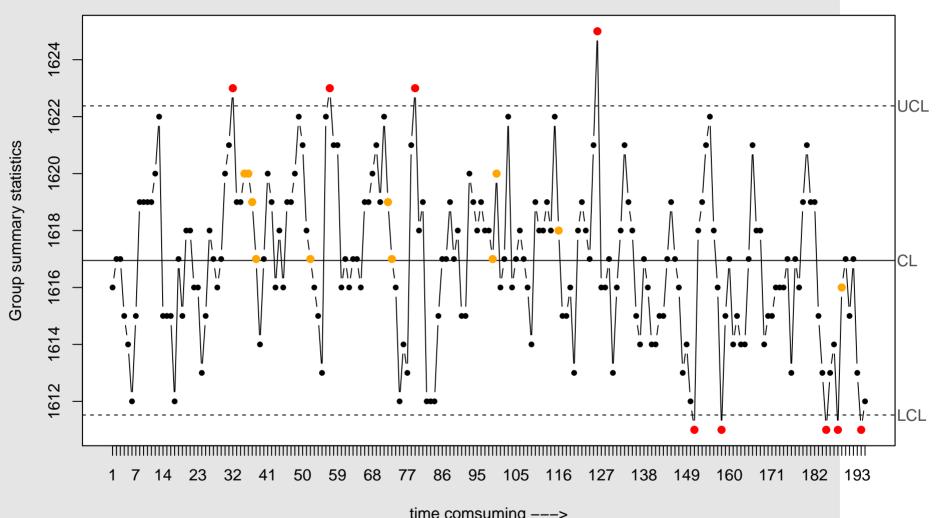
StdDev = 1.686225

LCL = 1611.623 UCL = 1621.741 Number beyond limits = 15 Number violating runs = 13



Number of groups = 195 Center = 1616.815 StdDev = 1.805038

LCL = 1611.4 UCL = 1622.23 Number beyond limits = 7 Number violating runs = 15

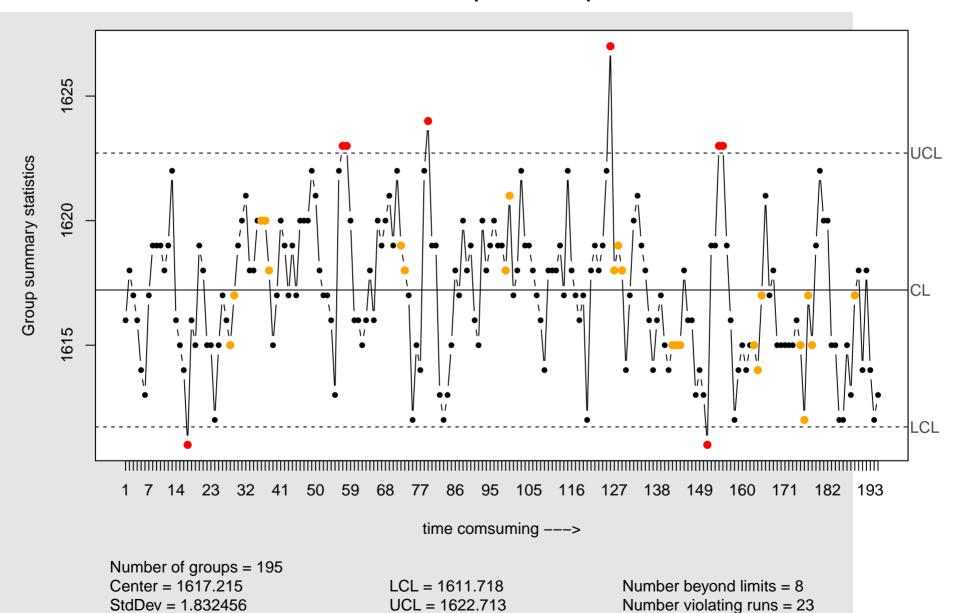


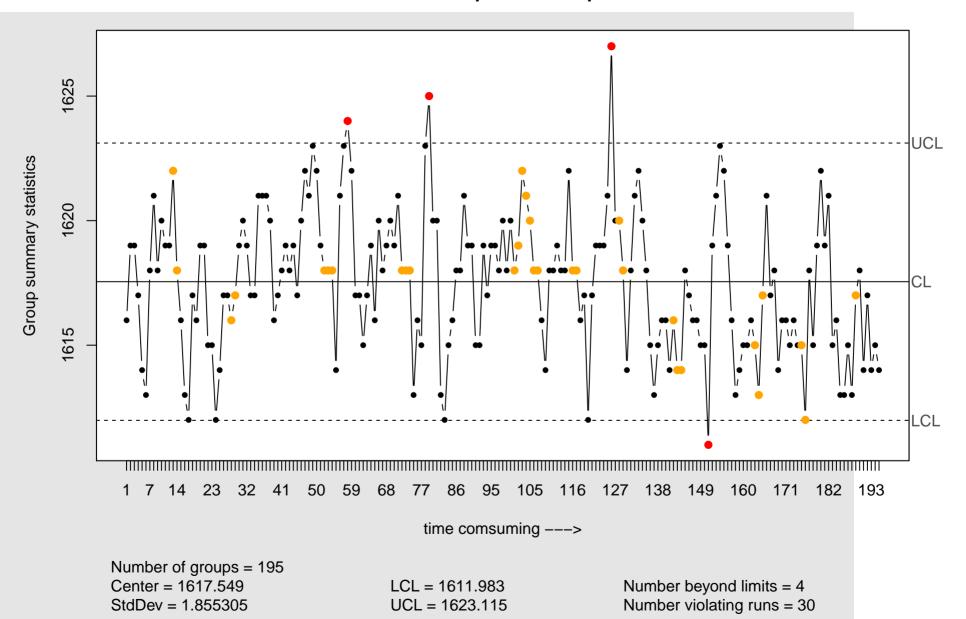
time comsuming --->

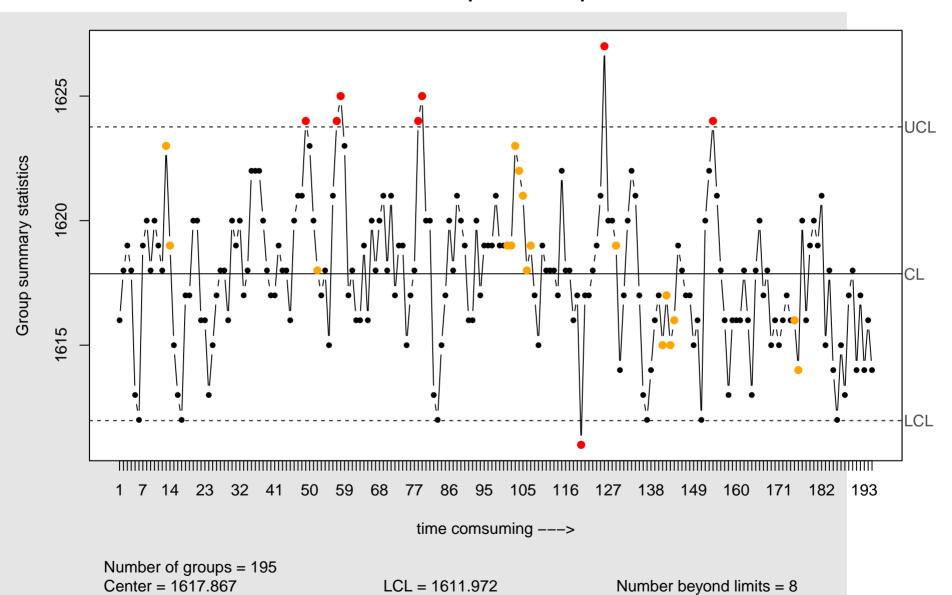
Number of groups = 195 Center = 1616.949 StdDev = 1.809607

LCL = 1611.52 UCL = 1622.378

Number beyond limits = 9 Number violating runs = 11



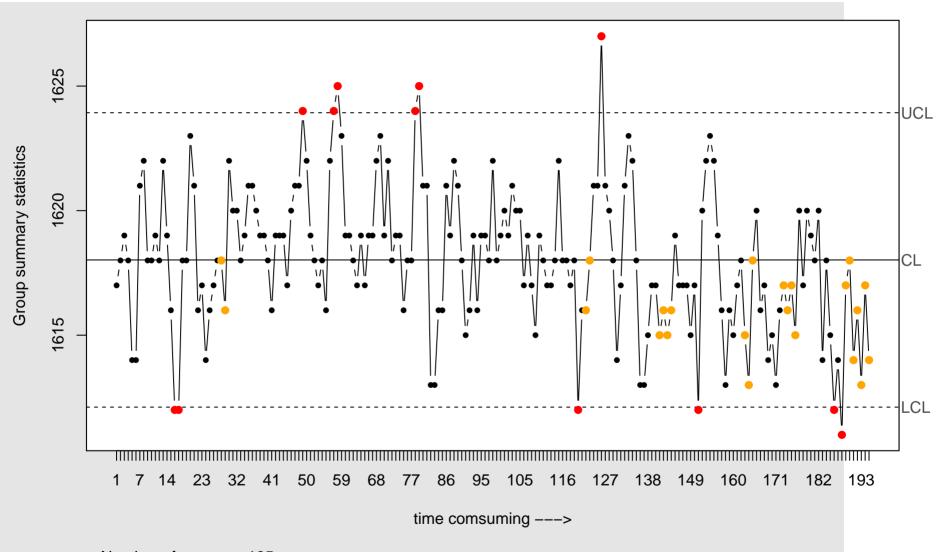




UCL = 1623.762

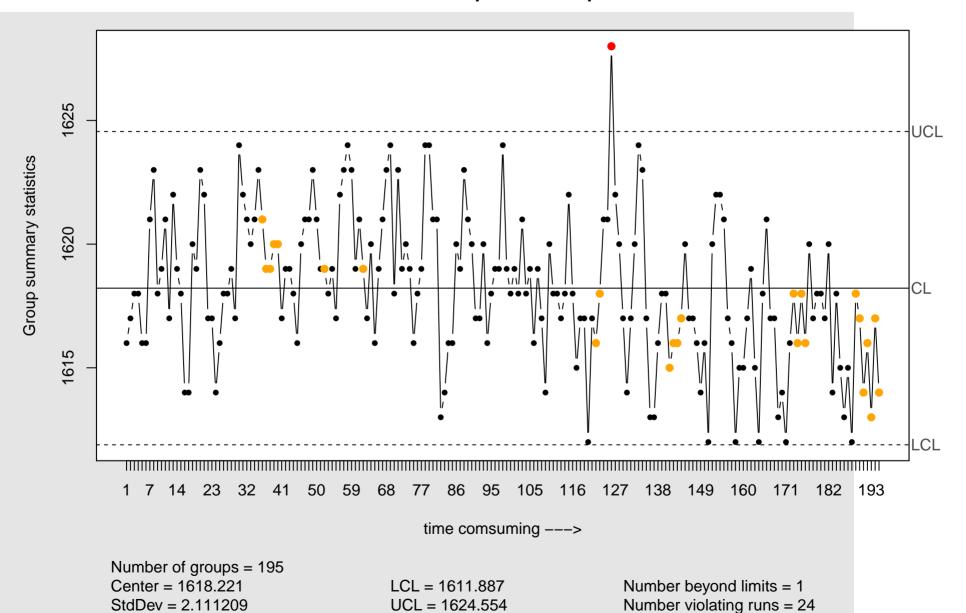
Number violating runs = 17

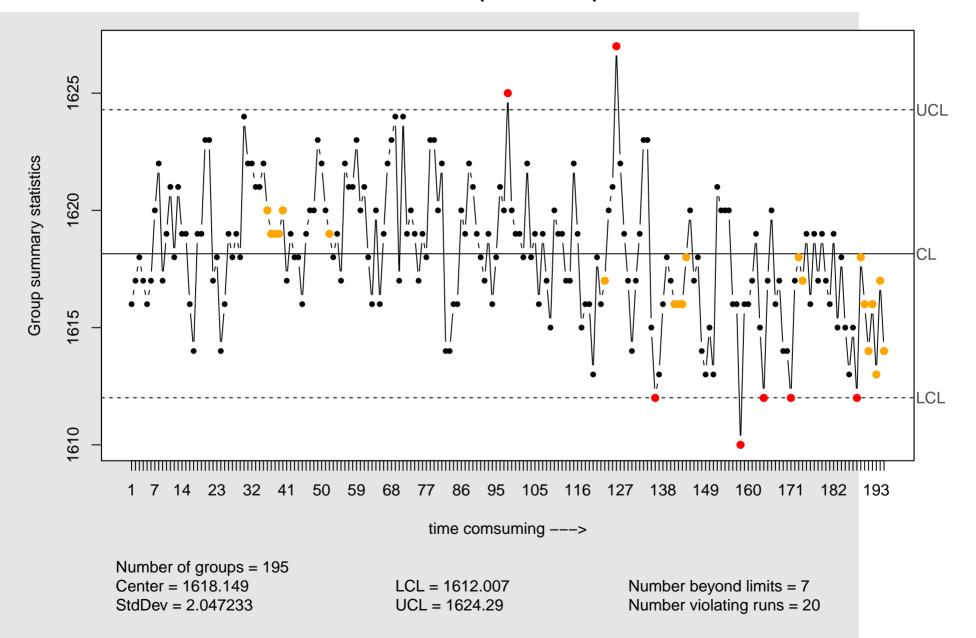
StdDev = 1.964978

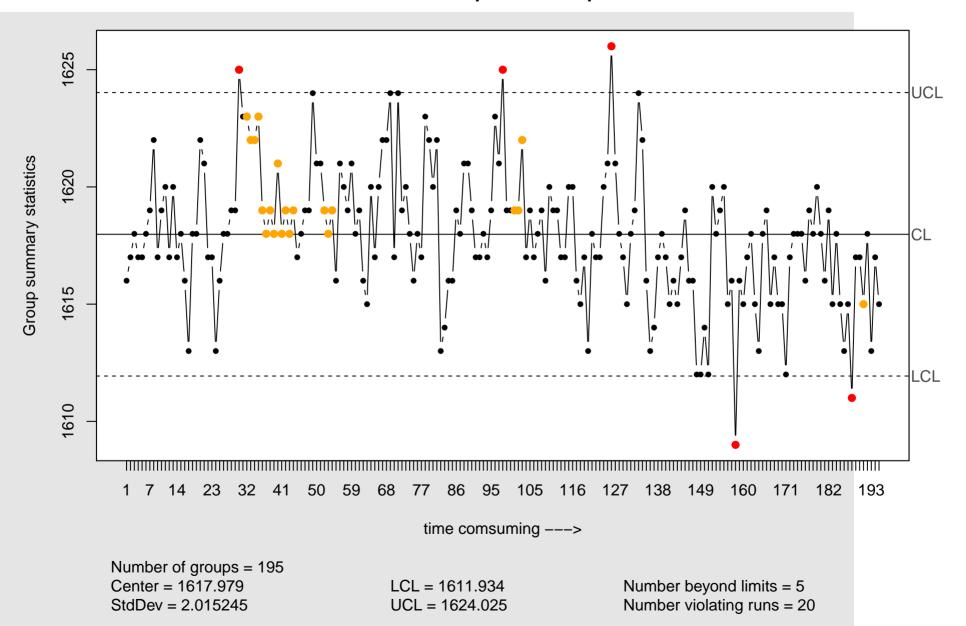


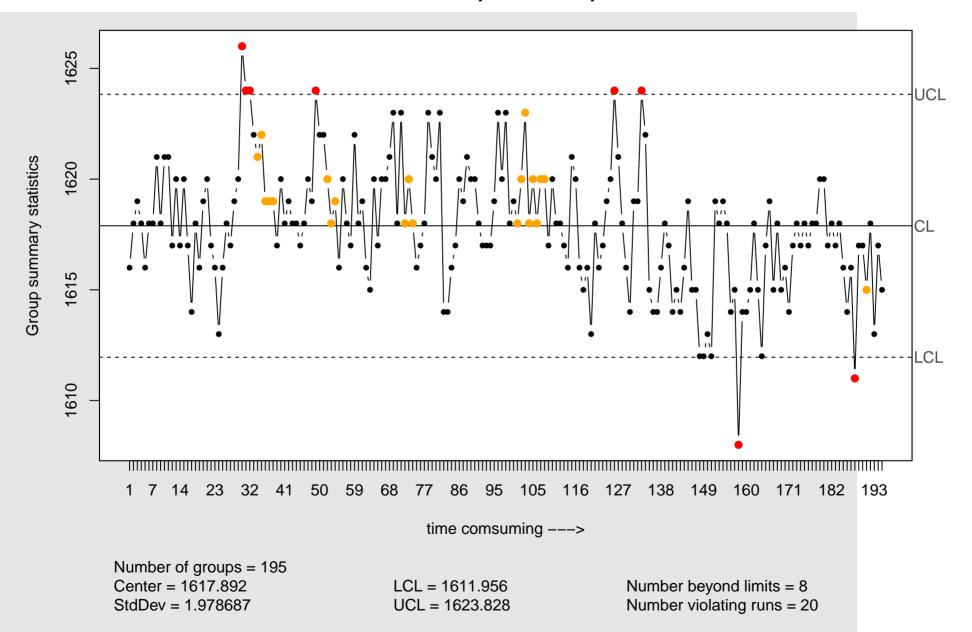
Number of groups = 195 Center = 1618.021 StdDev = 1.969547

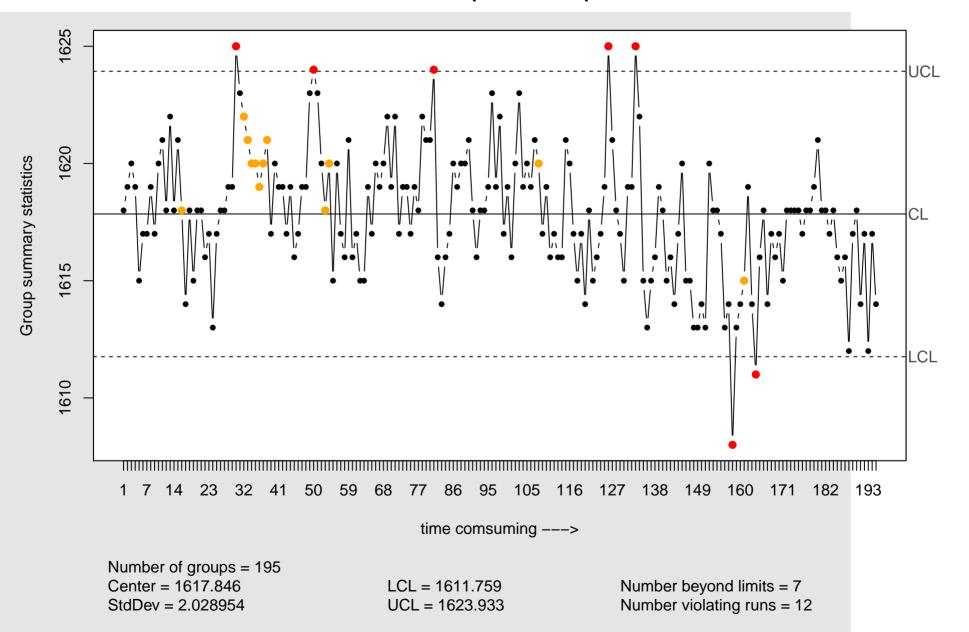
LCL = 1612.112 UCL = 1623.929 Number beyond limits = 12 Number violating runs = 22

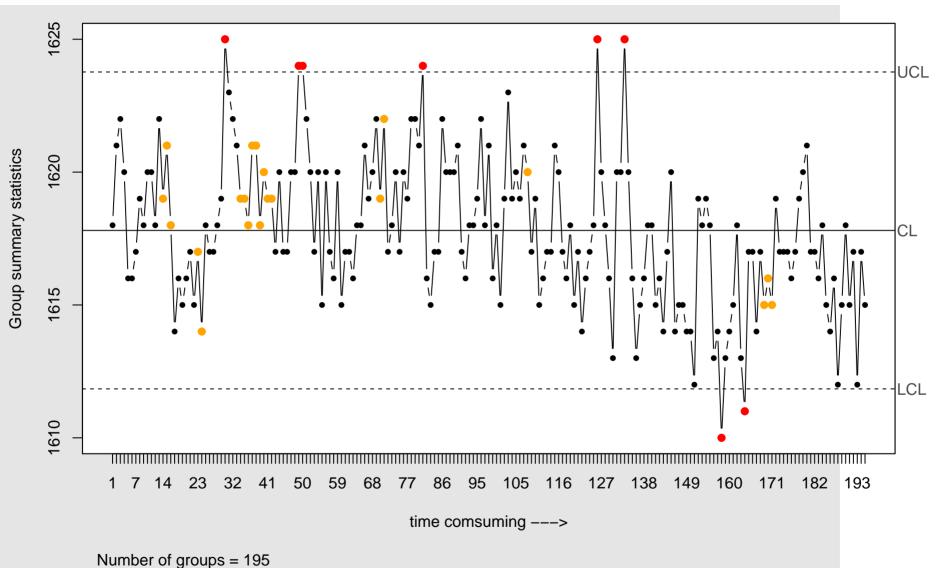






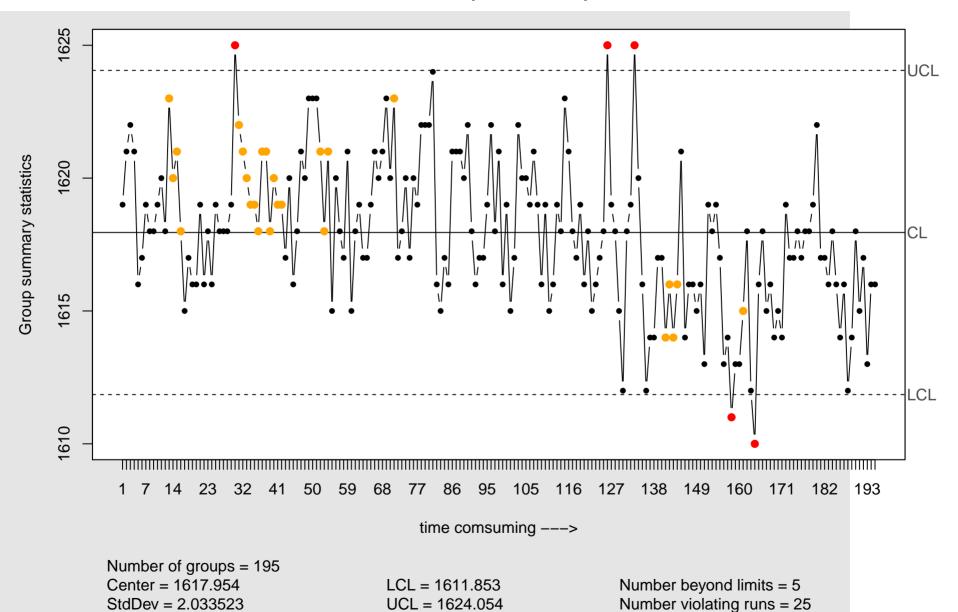


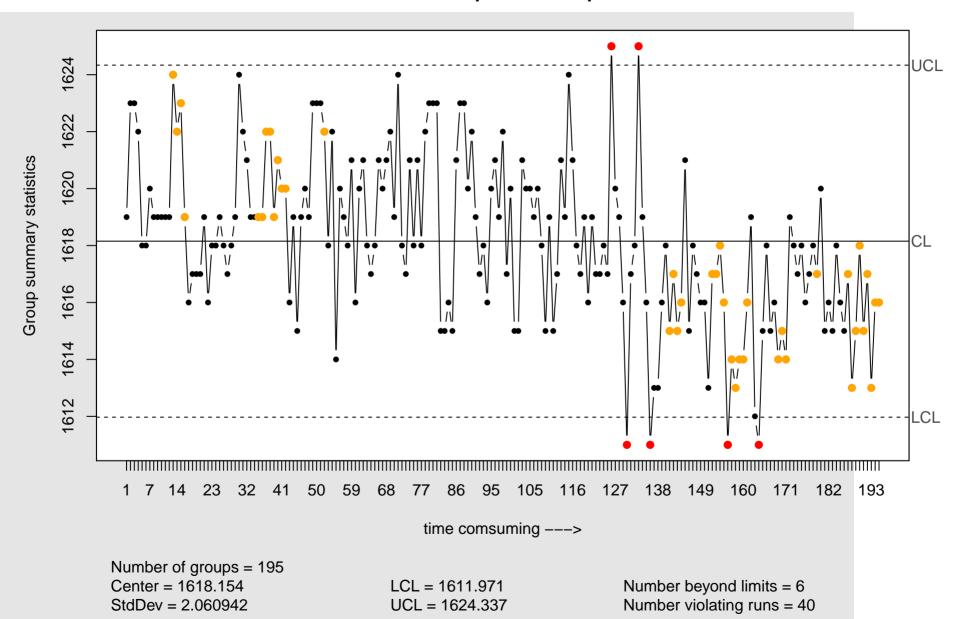


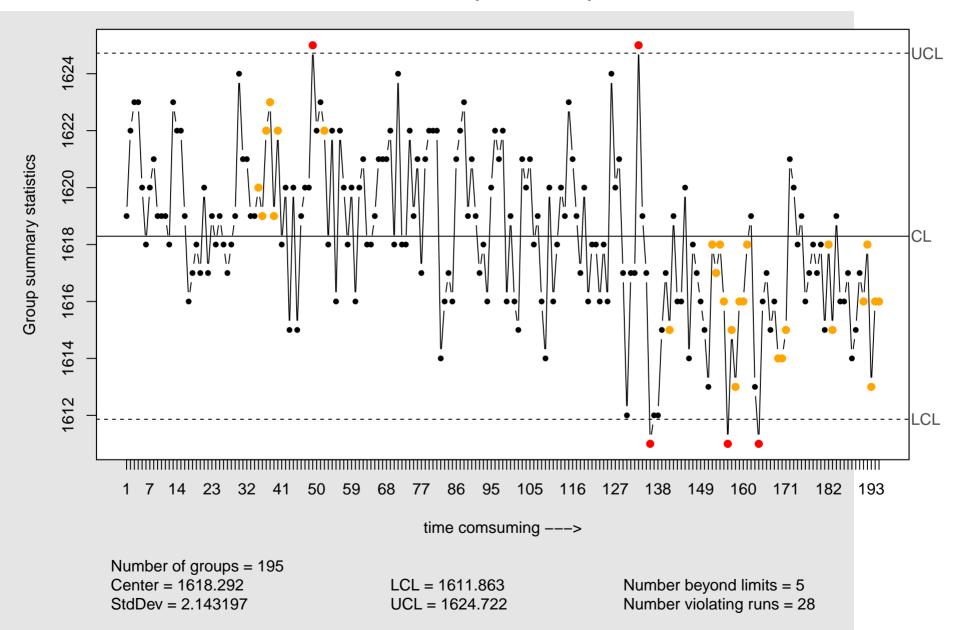


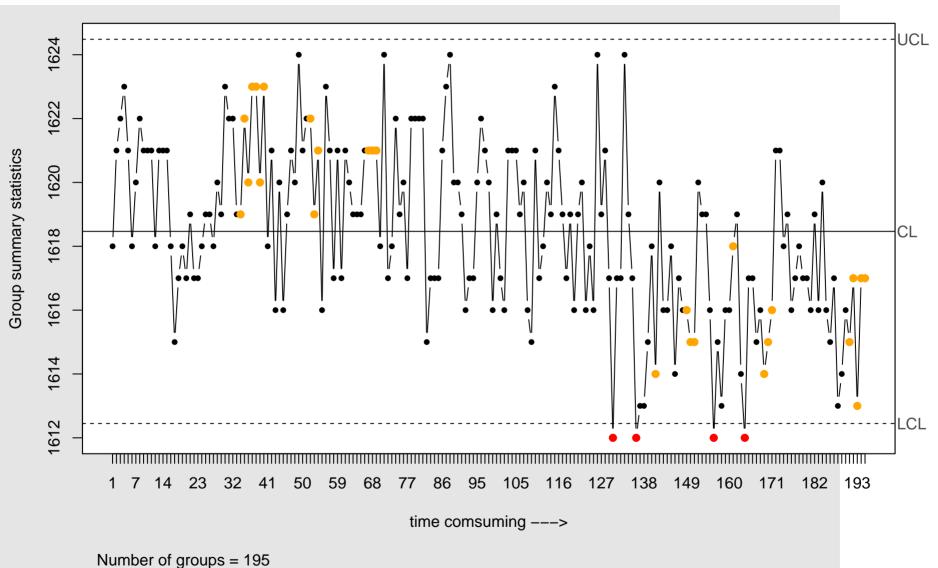
Number of groups = 195 Center = 1617.805 StdDev = 1.987826

LCL = 1611.842 UCL = 1623.769 Number beyond limits = 8 Number violating runs = 20



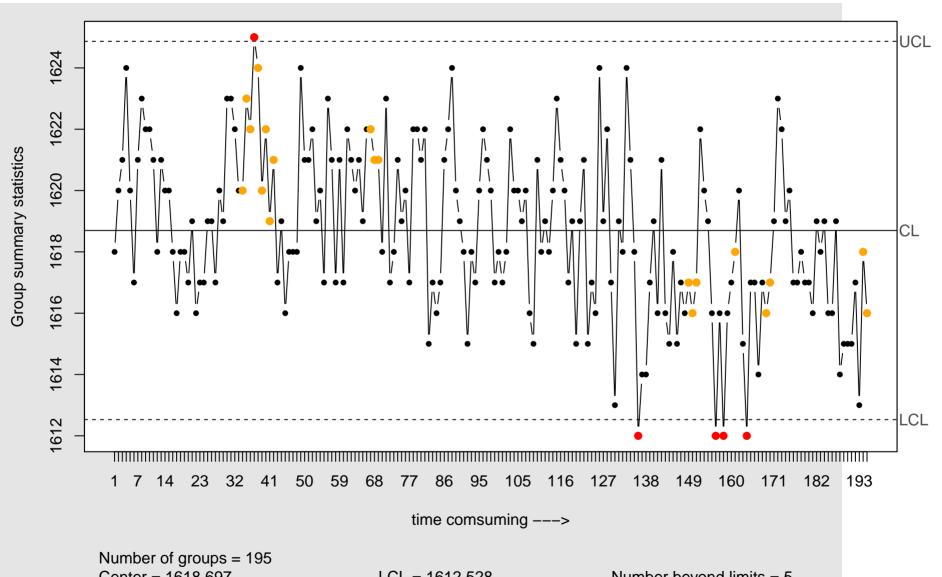






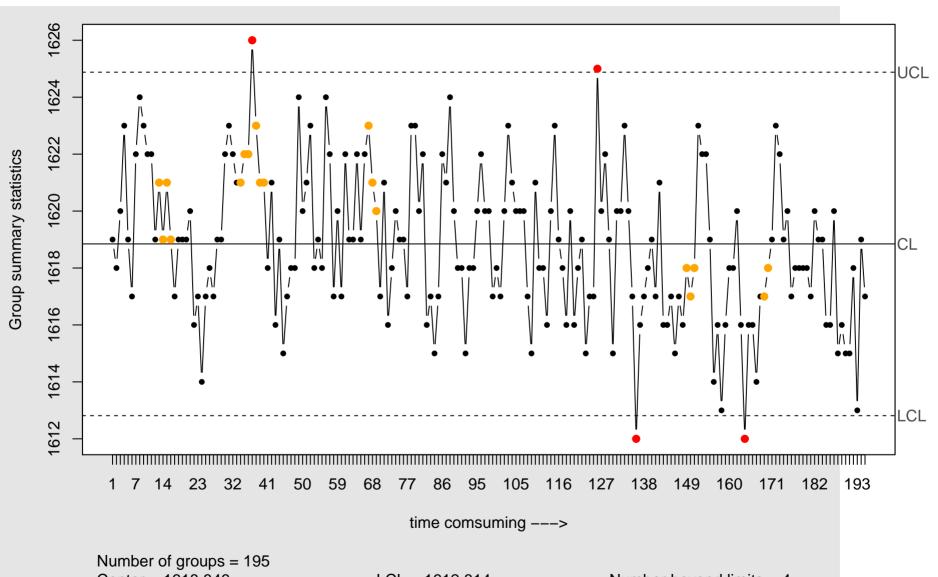
Number of groups = 195 Center = 1618.467 StdDev = 2.006105

LCL = 1612.448 UCL = 1624.485 Number beyond limits = 4 Number violating runs = 26



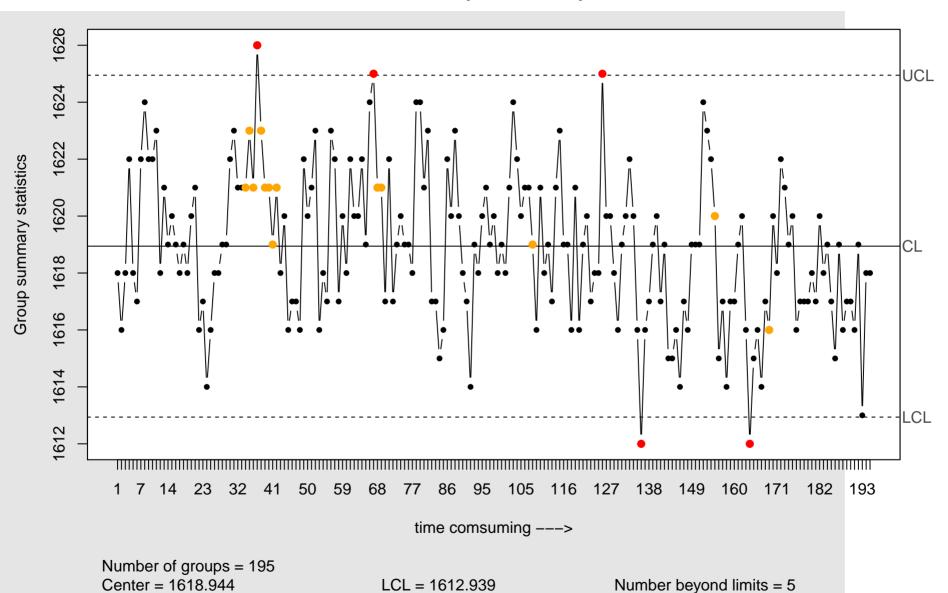
Number of groups = 195 Center = 1618.697 StdDev = 2.056372

LCL = 1612.528 UCL = 1624.867 Number beyond limits = 5 Number violating runs = 20



Number of groups = 195 Center = 1618.846 StdDev = 2.010675

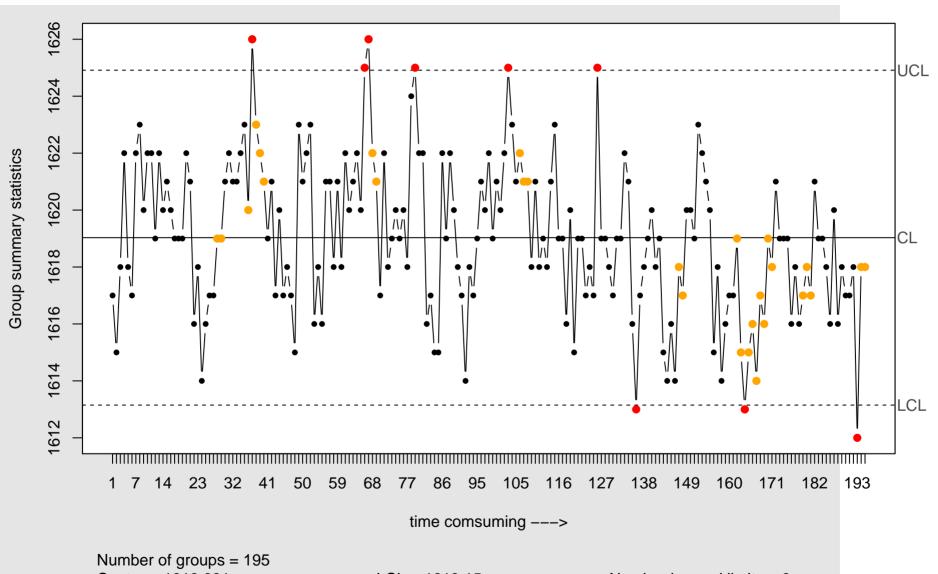
LCL = 1612.814 UCL = 1624.878 Number beyond limits = 4 Number violating runs = 19



UCL = 1624.948

Number violating runs = 15

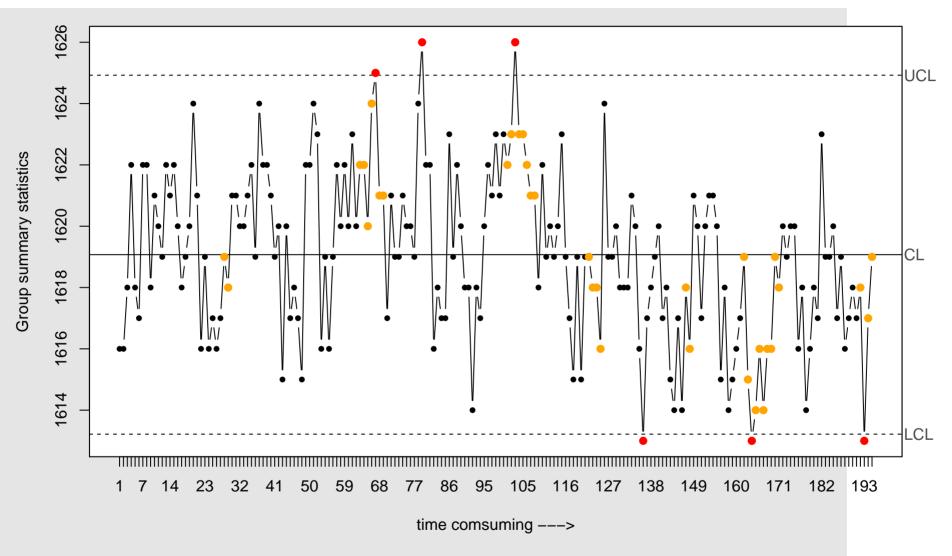
StdDev = 2.001535



Number of groups = 195 Center = 1619.031 StdDev = 1.960408

LCL = 1613.15 UCL = 1624.912

Number beyond limits = 9 Number violating runs = 30



Number of groups = 195 Center = 1619.072

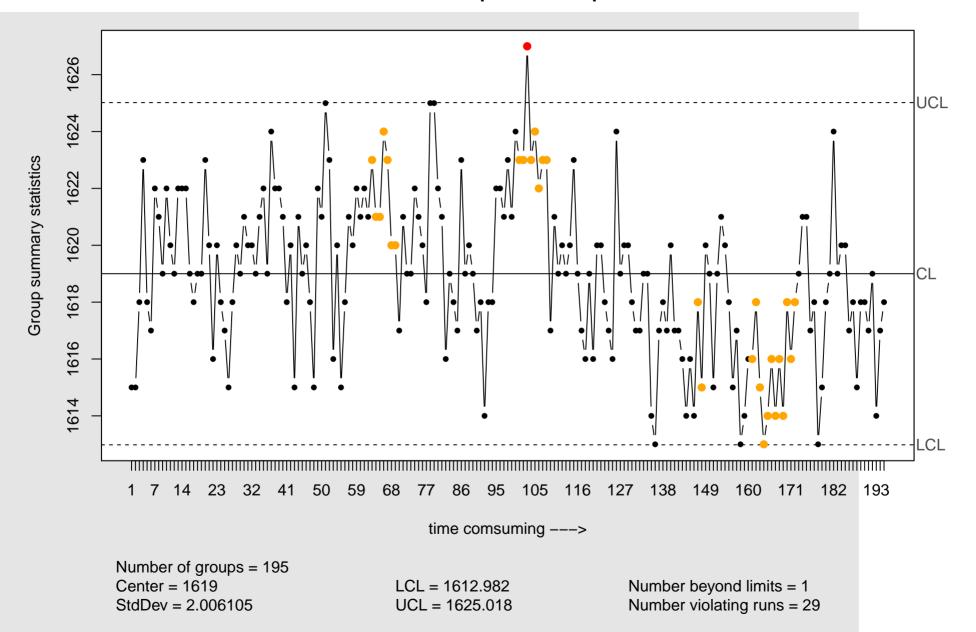
StdDev = 1.951269

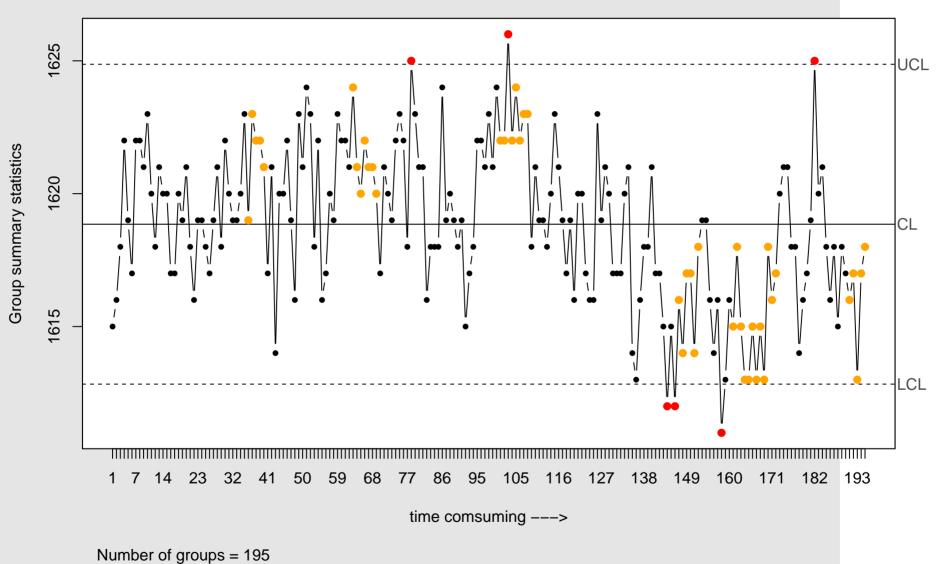
LCL = 1613.218

UCL = 1624.926

Number beyond limits = 6

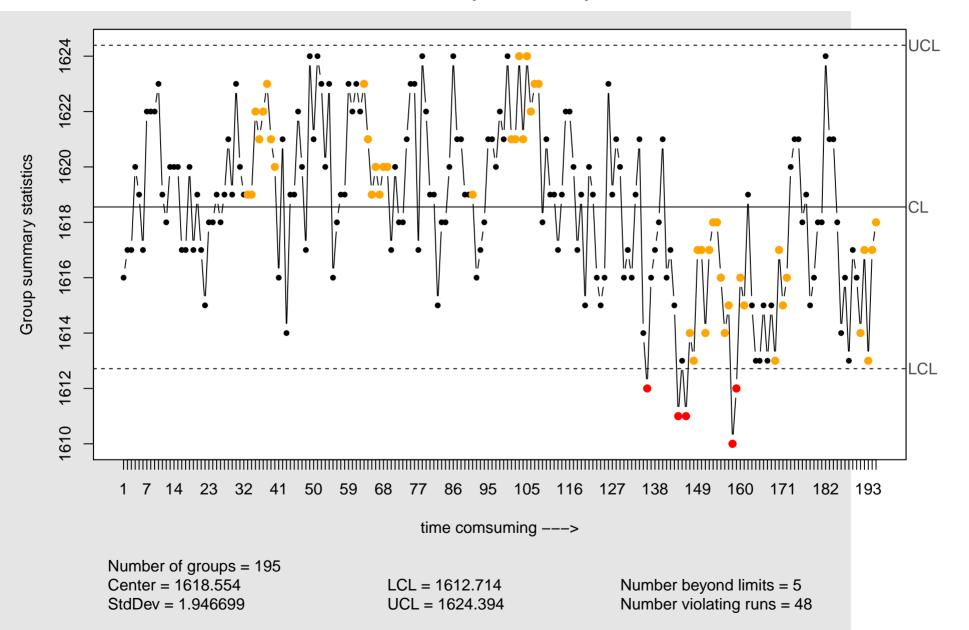
Number violating runs = 37

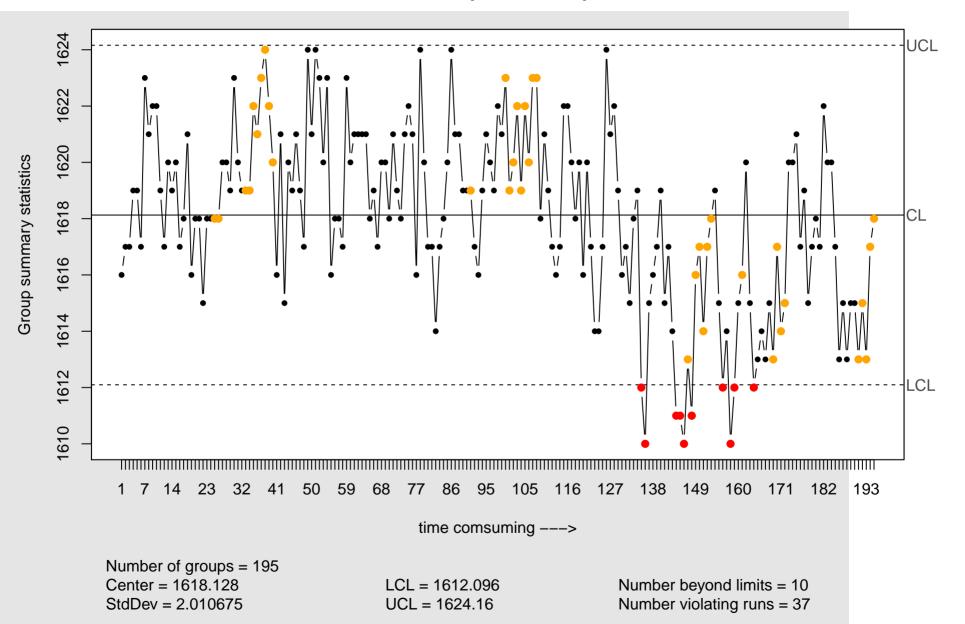


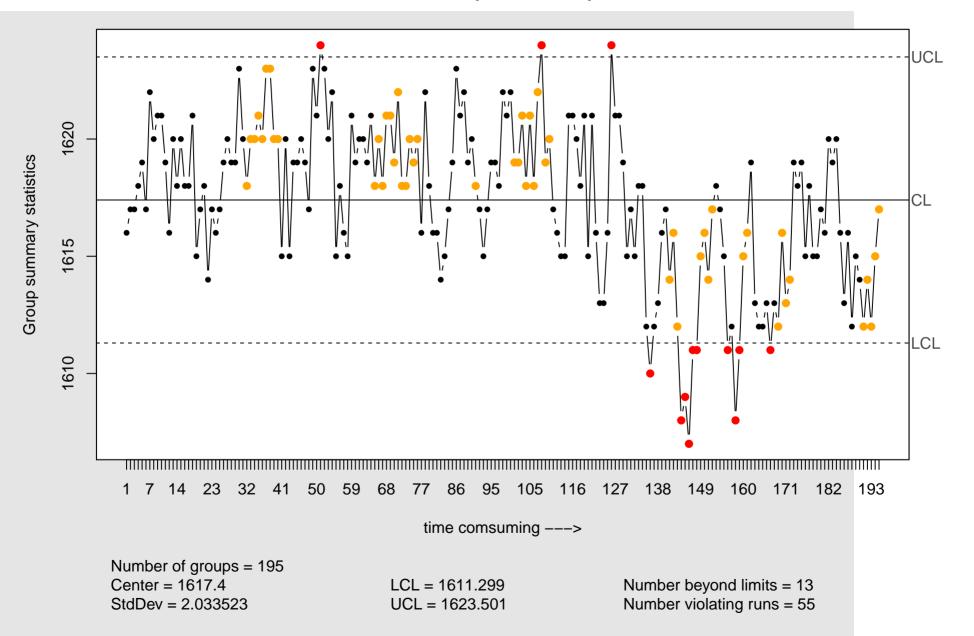


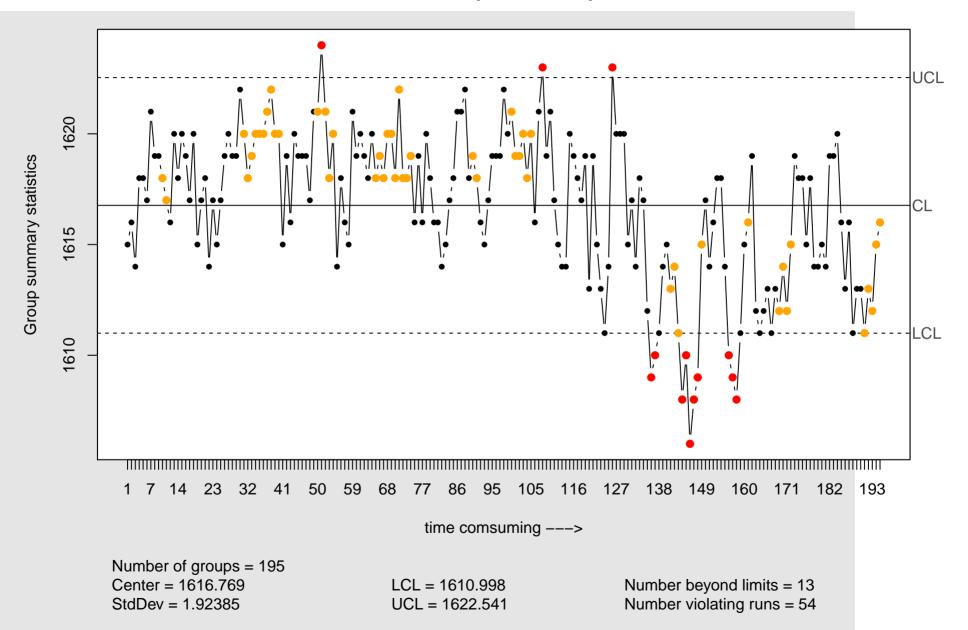
Number of groups = 195 Center = 1618.851 StdDev = 2.006105

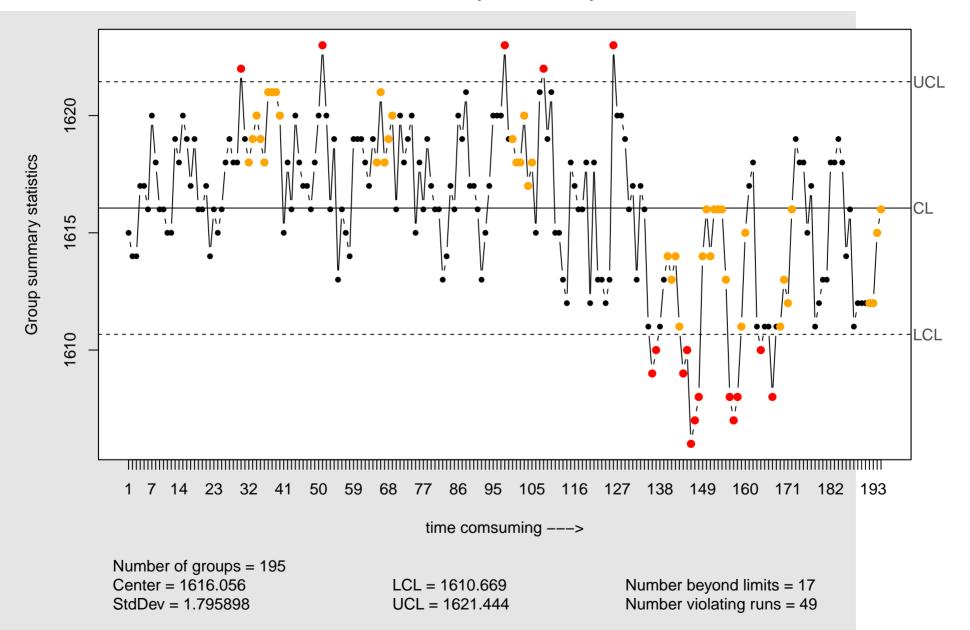
LCL = 1612.833 UCL = 1624.87 Number beyond limits = 6 Number violating runs = 43

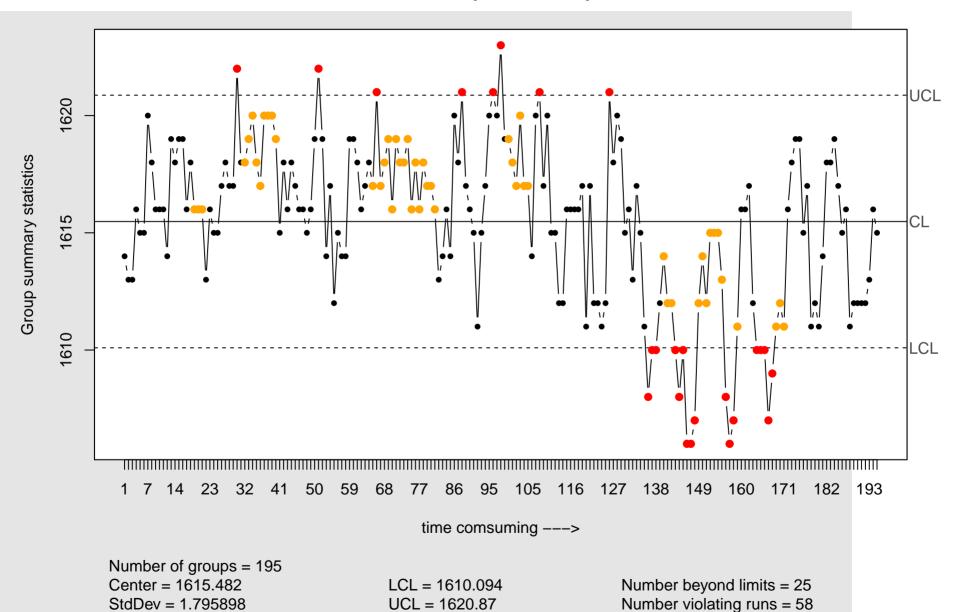


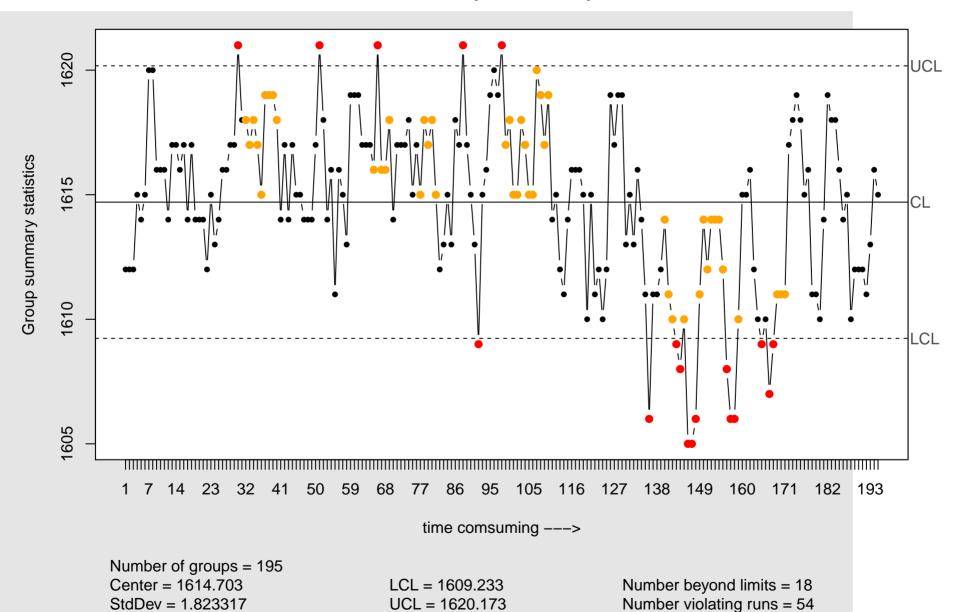


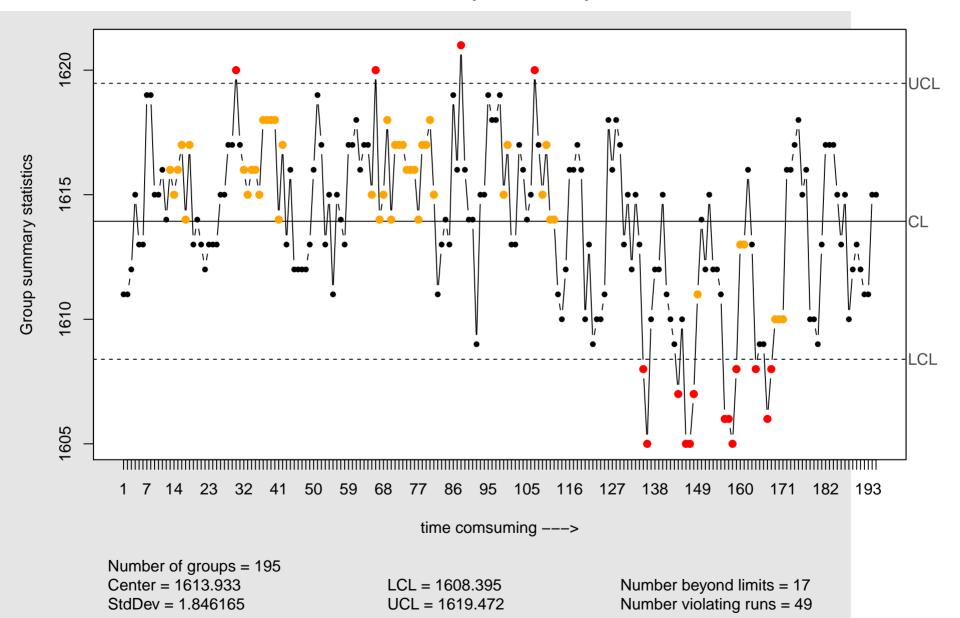


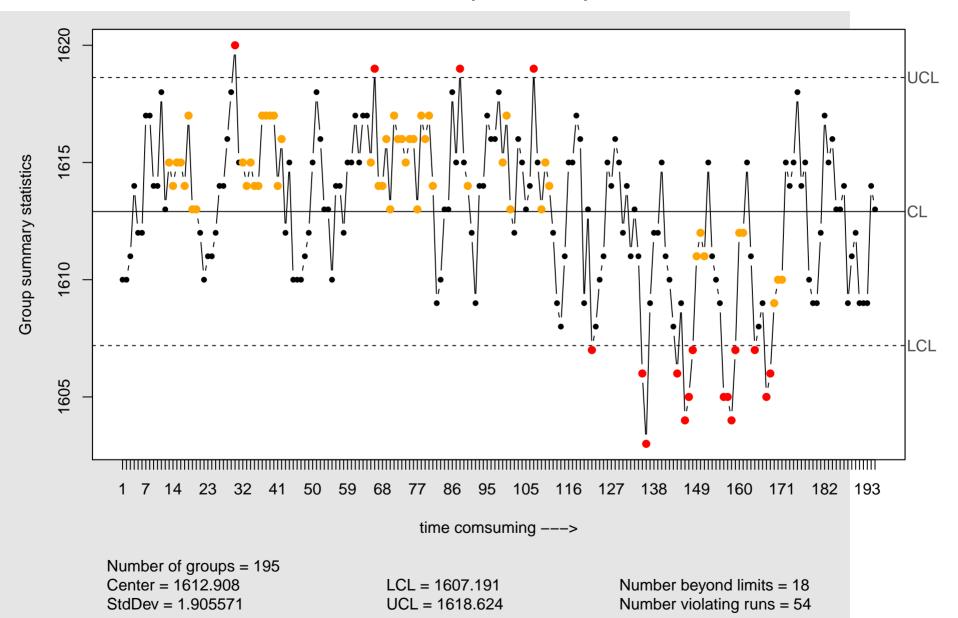


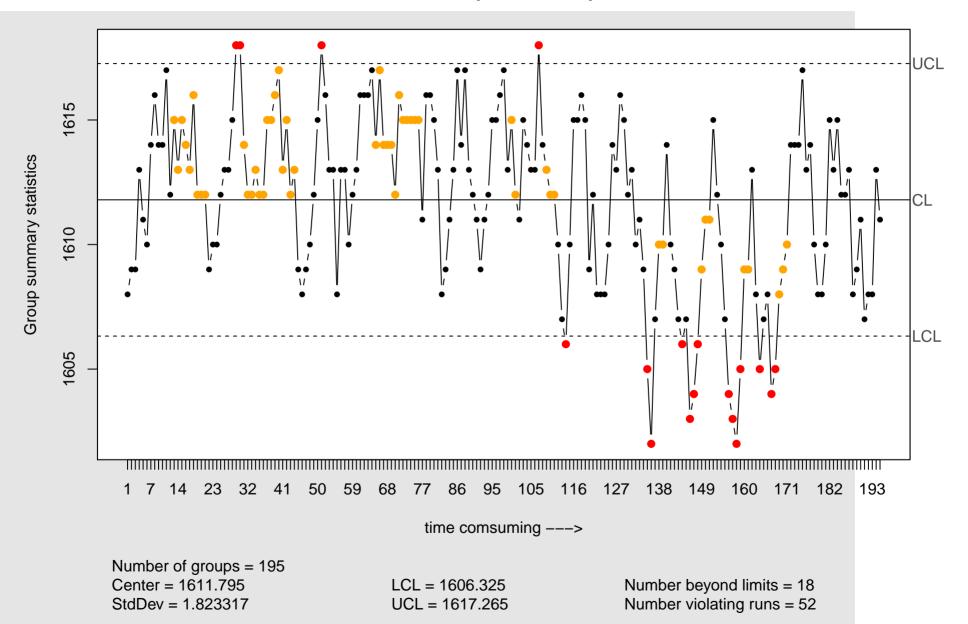


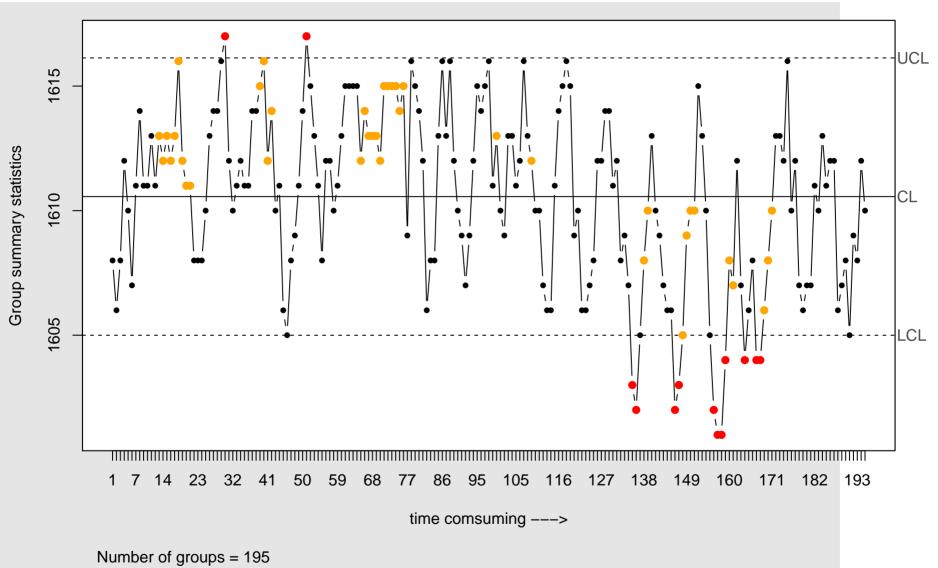






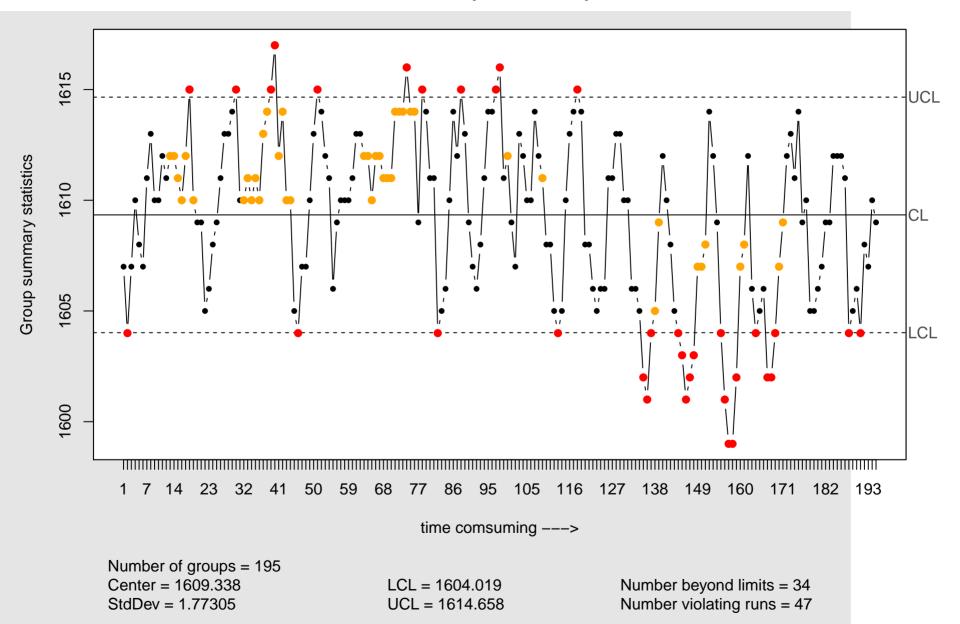


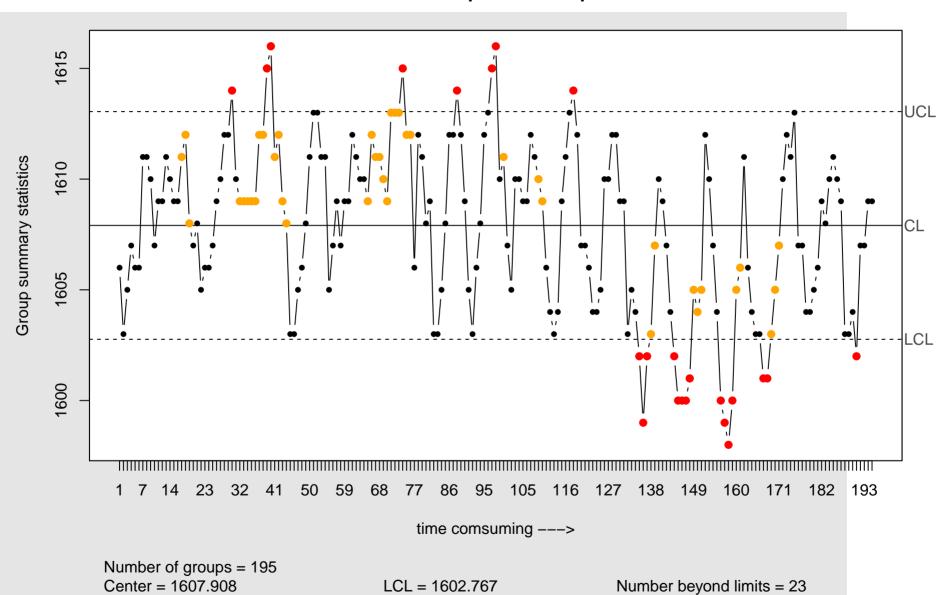




Number of groups = 195 Center = 1610.564 StdDev = 1.855305

LCL = 1604.998 UCL = 1616.13 Number beyond limits = 13 Number violating runs = 39

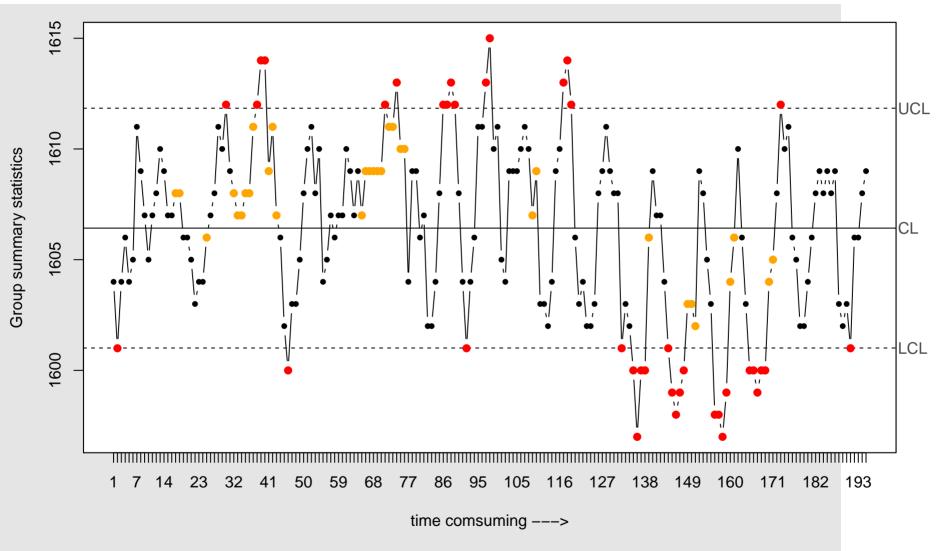




UCL = 1613.049

Number violating runs = 42

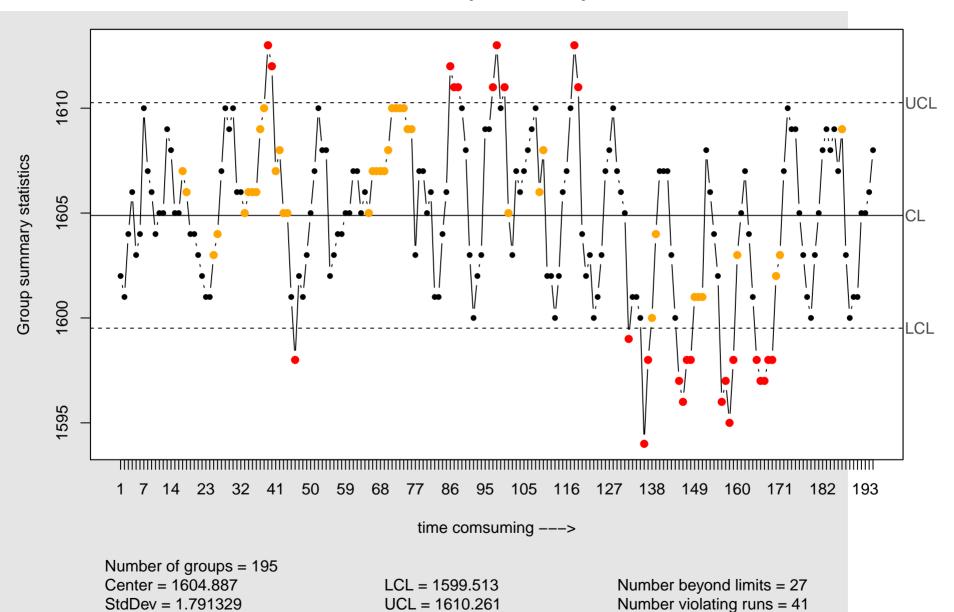
StdDev = 1.713643

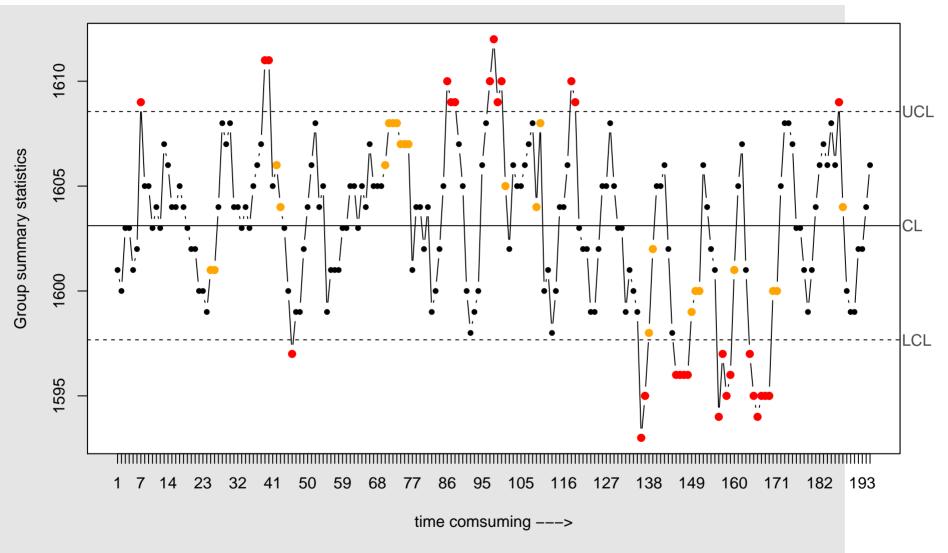


Number of groups = 195 Center = 1606.426

StdDev = 1.805038

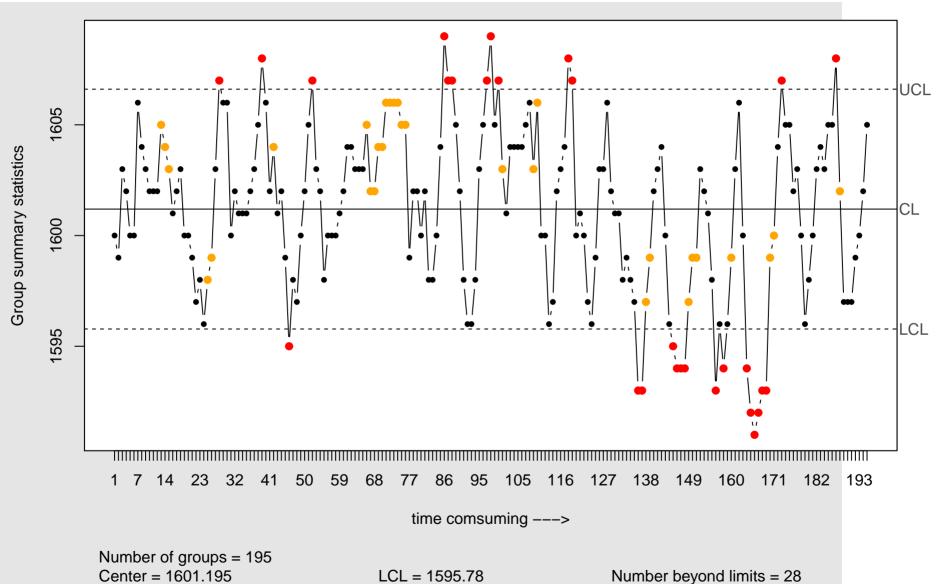
LCL = 1601.011 UCL = 1611.841 Number beyond limits = 39 Number violating runs = 39





Number of groups = 195 Center = 1603.113 StdDev = 1.814177

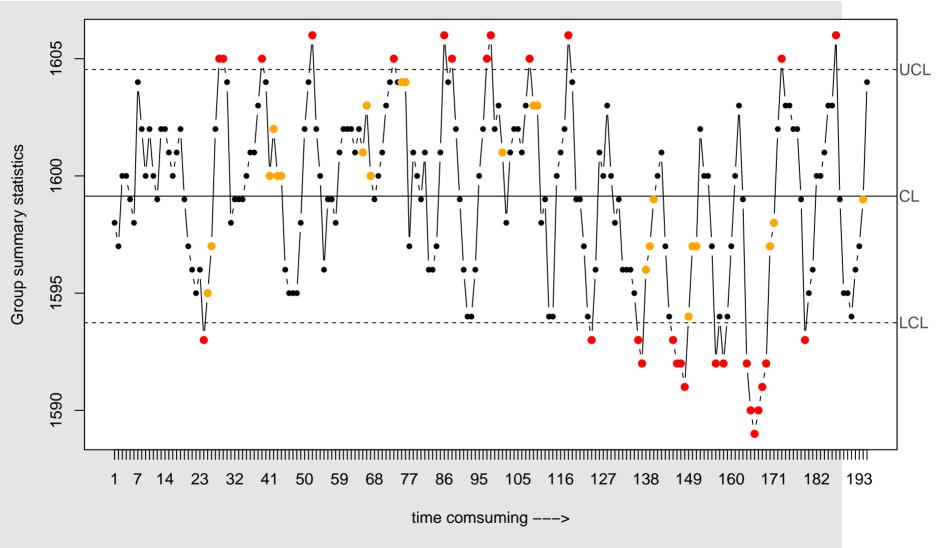
LCL = 1597.67 UCL = 1608.555 Number beyond limits = 30 Number violating runs = 27



Center = 1601.195 StdDev = 1.805038

LCL = 1595.78 UCL = 1606.61

Number violating runs = 32

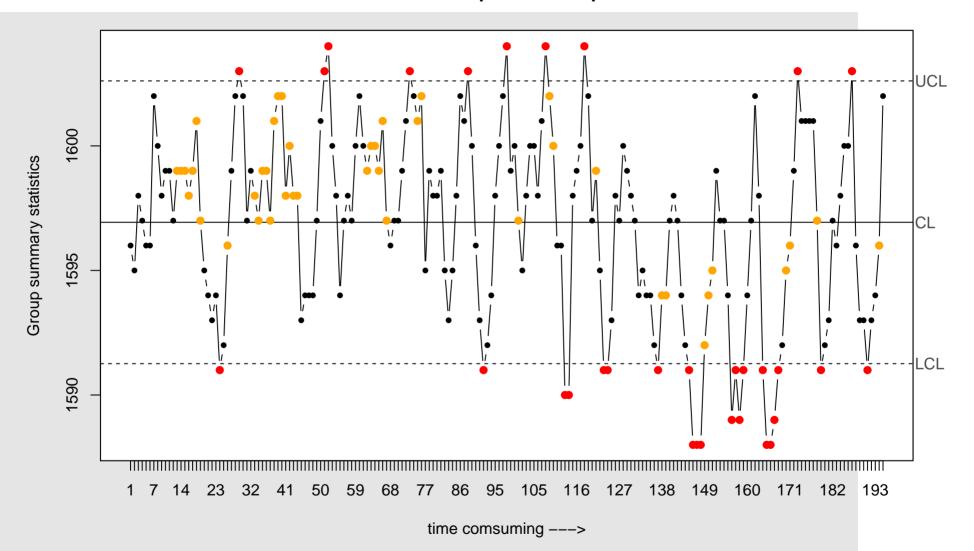


Number of groups = 195 Center = 1599.138

StdDev = 1.800468

LCL = 1593.737

Number beyond limits = 30 UCL = 1604.54 Number violating runs = 26



Number of groups = 195

Center = 1596.933

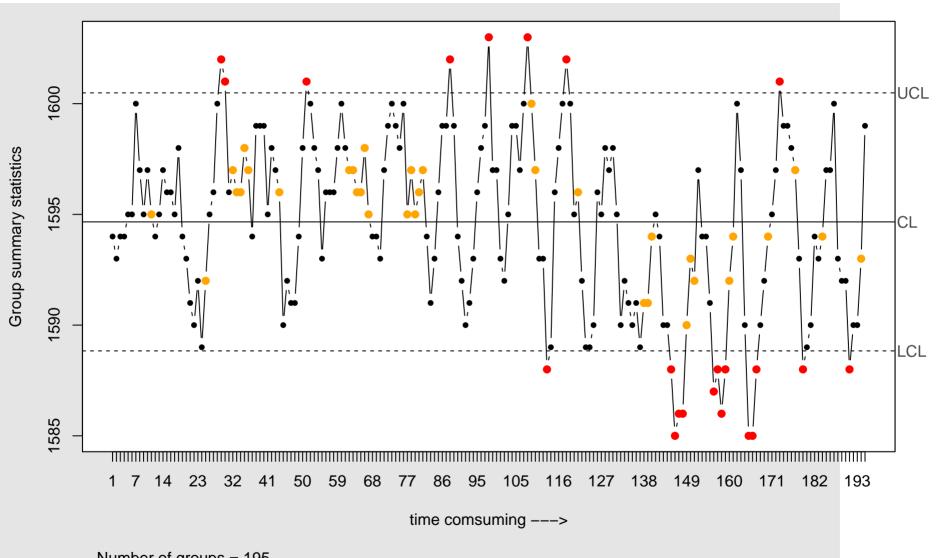
StdDev = 1.891862

LCL = 1591.258

UCL = 1602.609

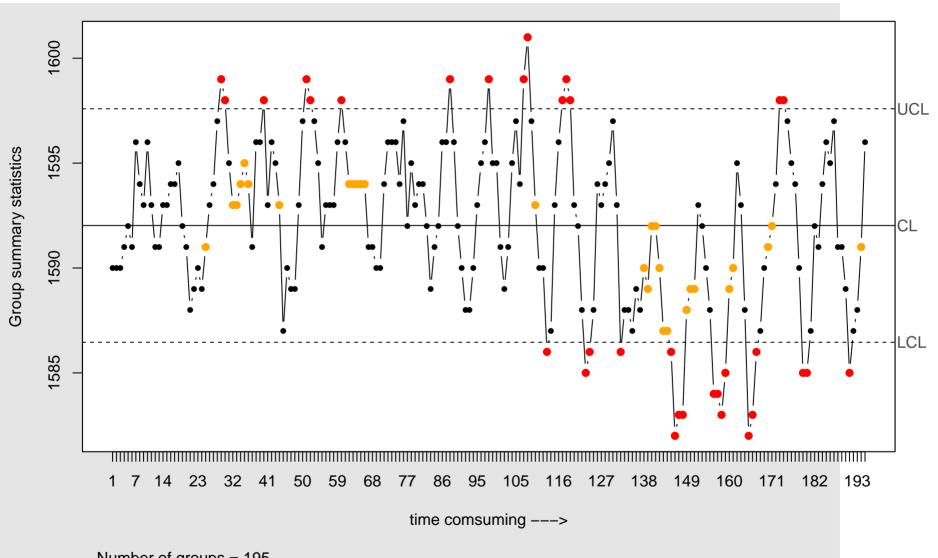
Number beyond limits = 32

Number violating runs = 41



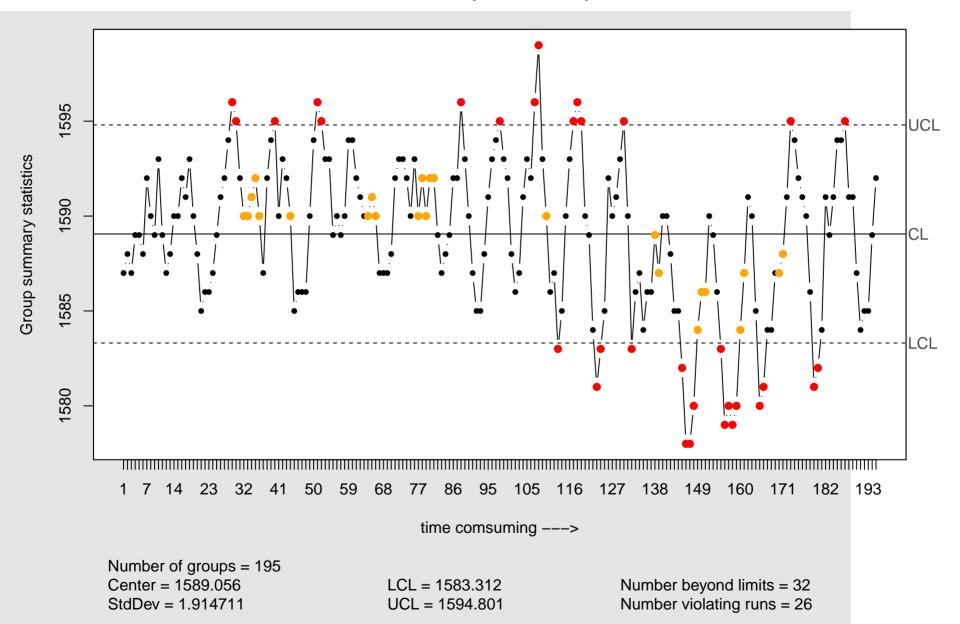
Number of groups = 195 Center = 1594.662 StdDev = 1.942129

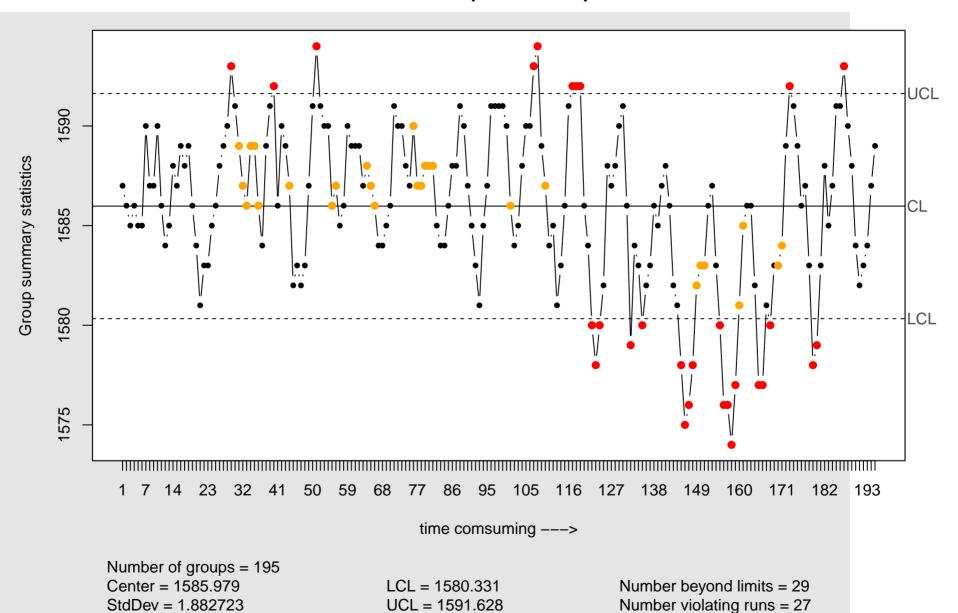
LCL = 1588.835 UCL = 1600.488 Number beyond limits = 22 Number violating runs = 36

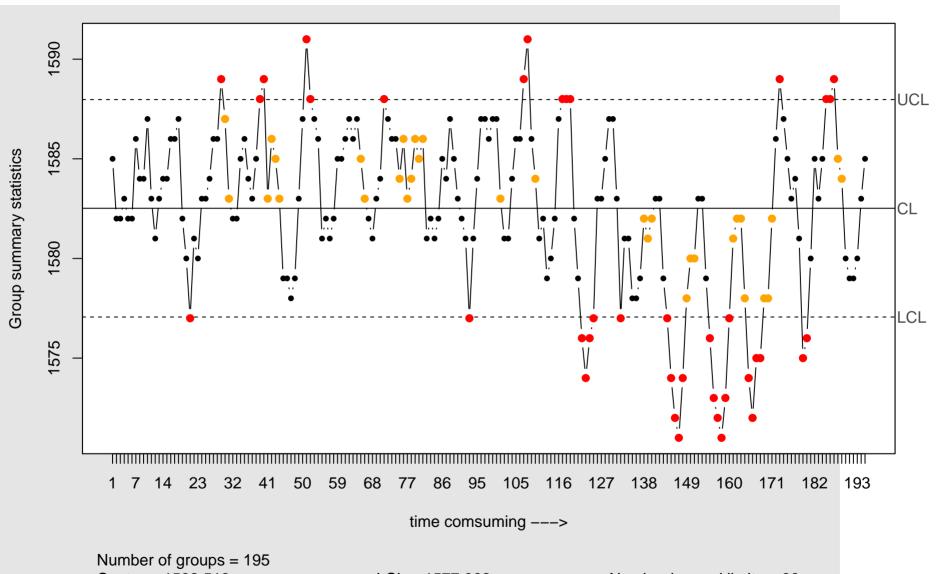


Number of groups = 195 Center = 1592.026 StdDev = 1.855305

LCL = 1586.46 UCL = 1597.592 Number beyond limits = 33 Number violating runs = 33

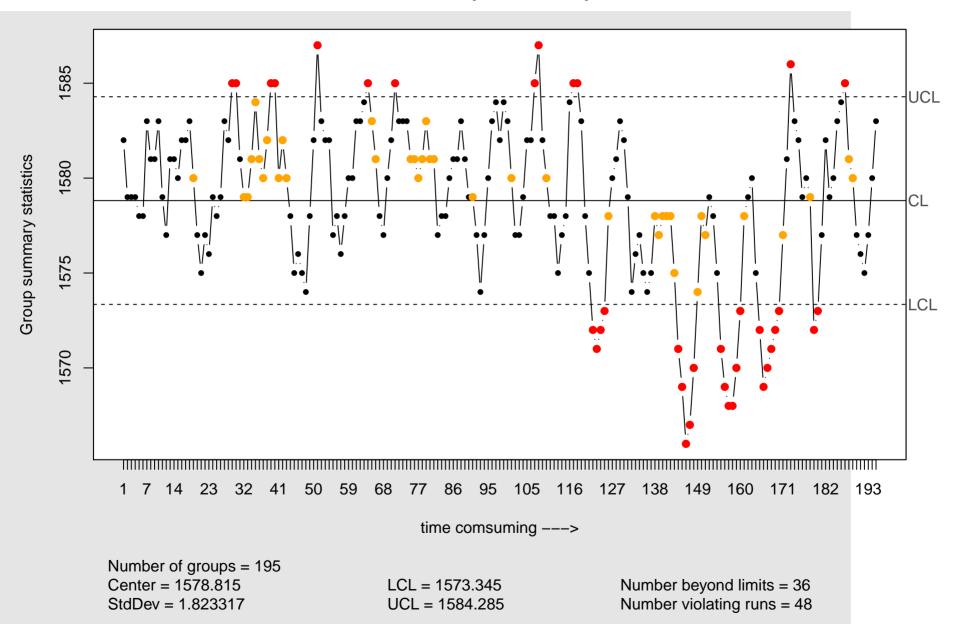


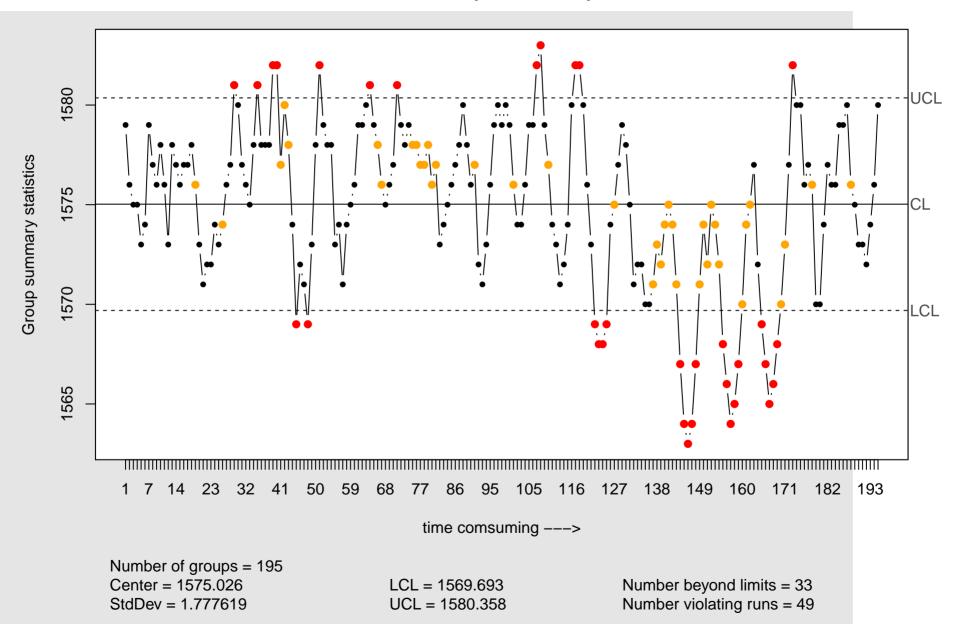


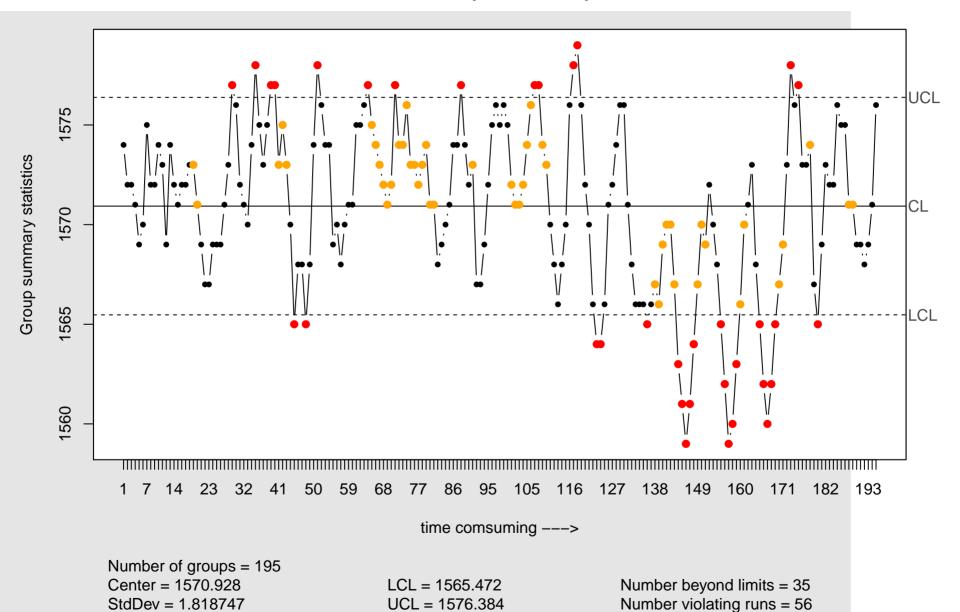


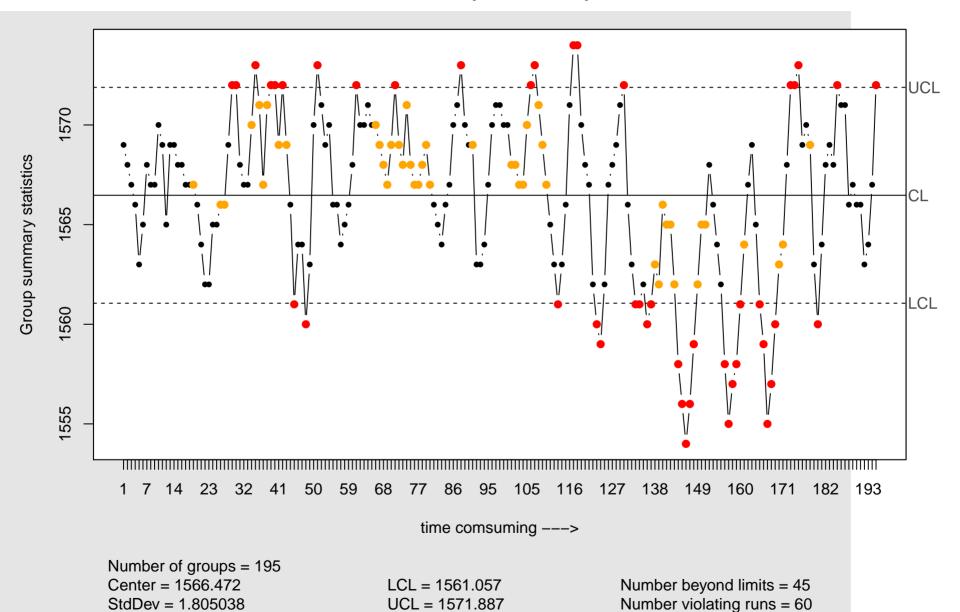
Number of groups = 195 Center = 1582.518 StdDev = 1.818747

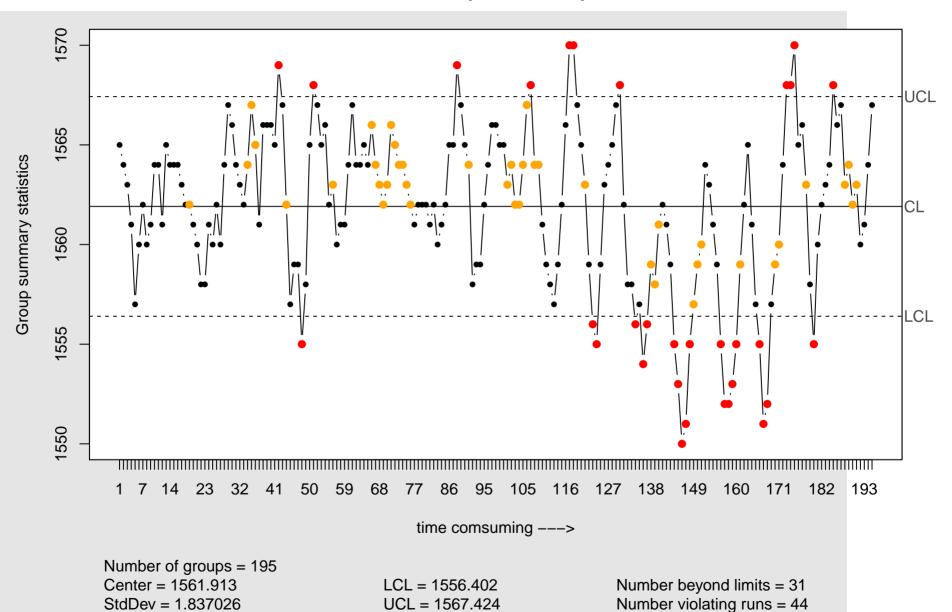
LCL = 1577.062 UCL = 1587.974 Number beyond limits = 39 Number violating runs = 38

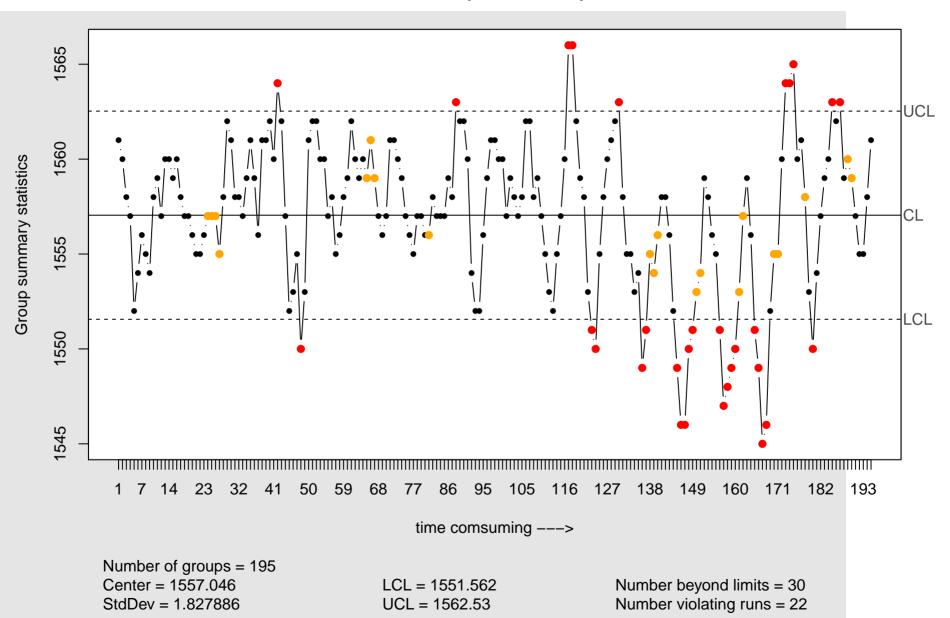


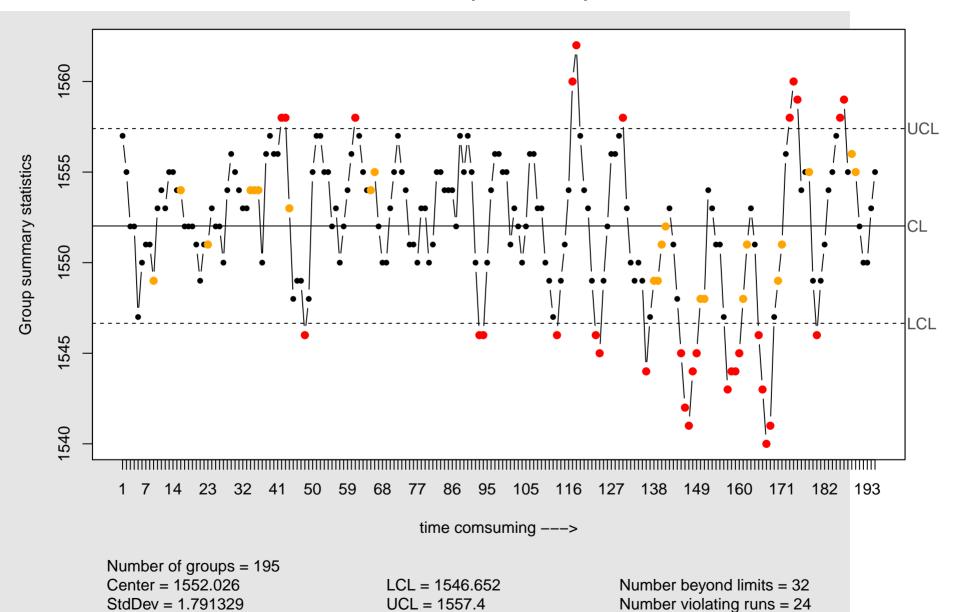


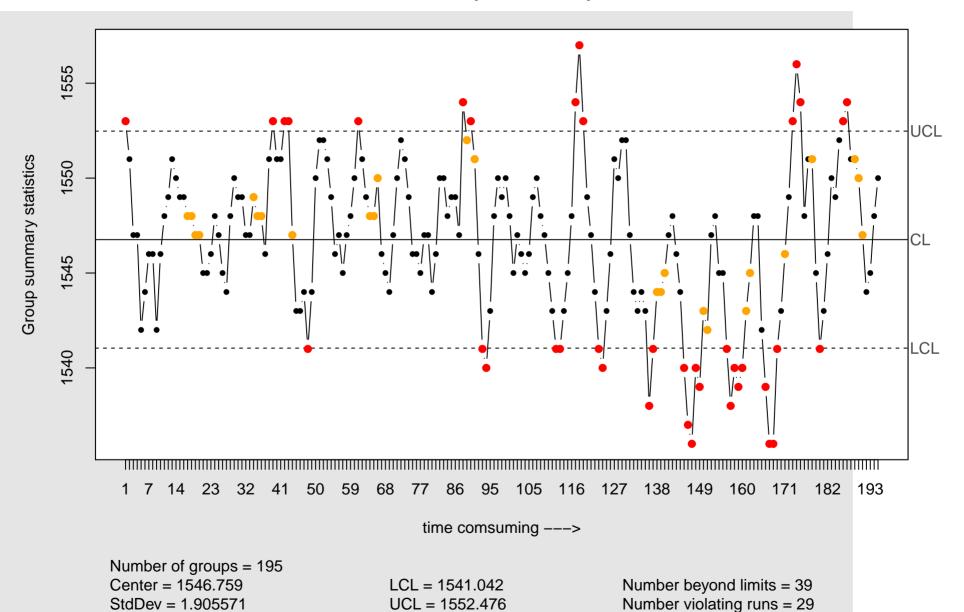


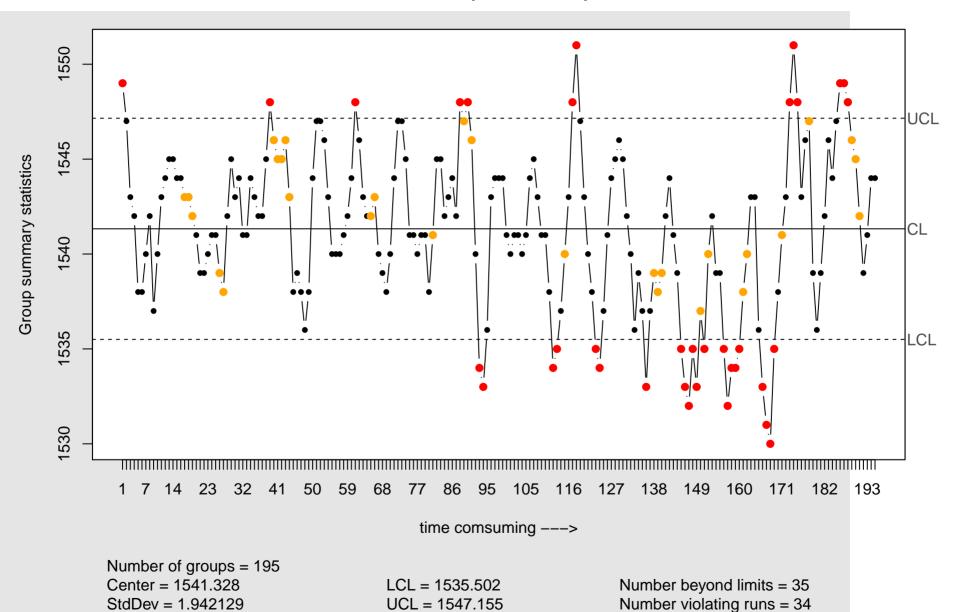


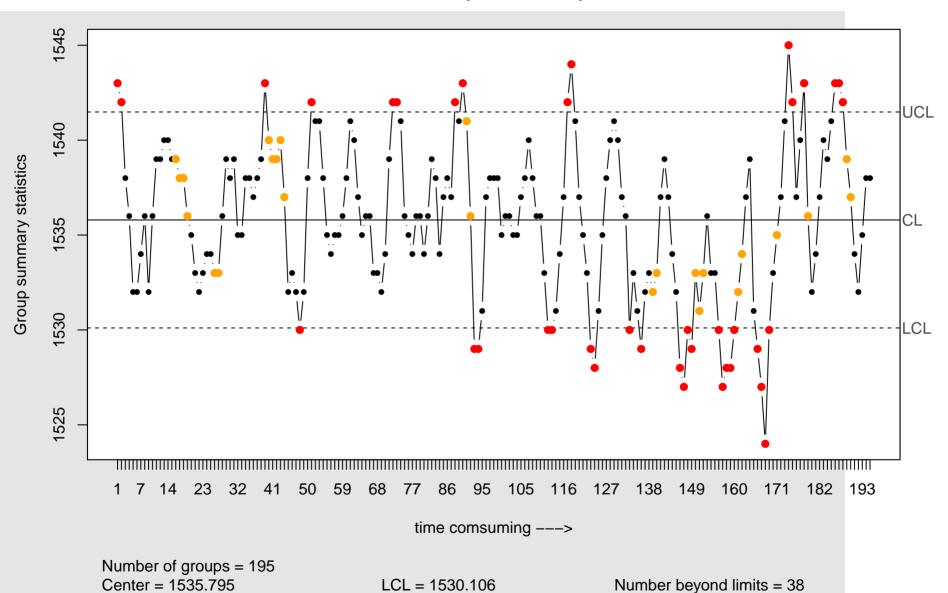








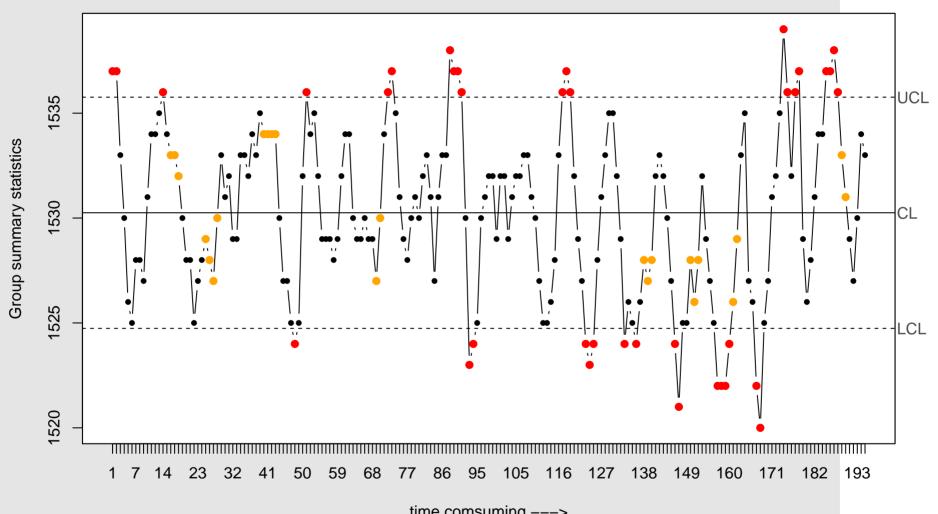




UCL = 1541.484

Number violating runs = 27

StdDev = 1.896432

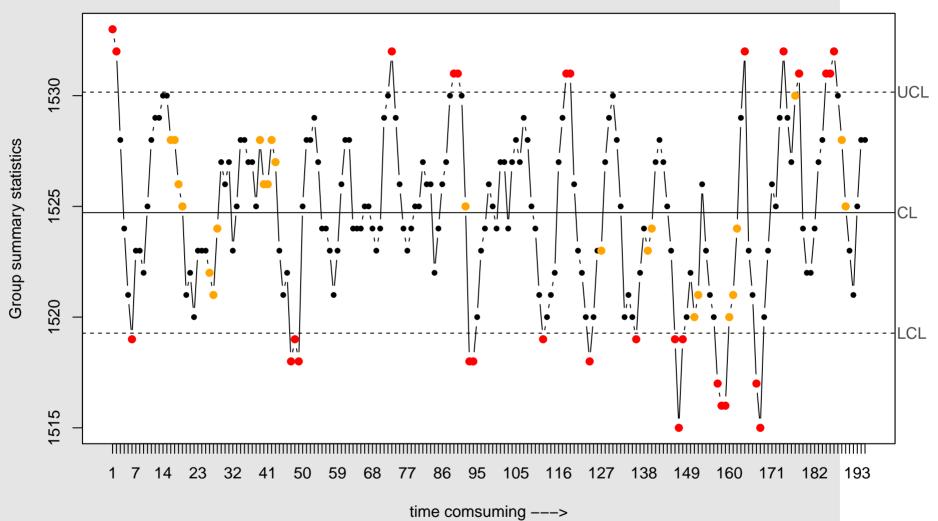


time comsuming --->

Number of groups = 195 Center = 1530.251StdDev = 1.837026

LCL = 1524.74UCL = 1535.762

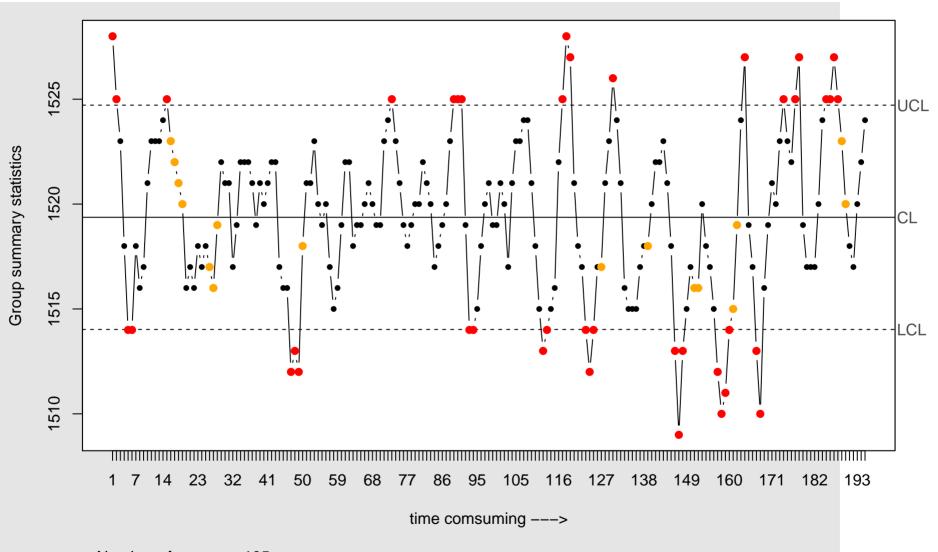
Number beyond limits = 37 Number violating runs = 28



Number of groups = 195 Center = 1524.718StdDev = 1.814177

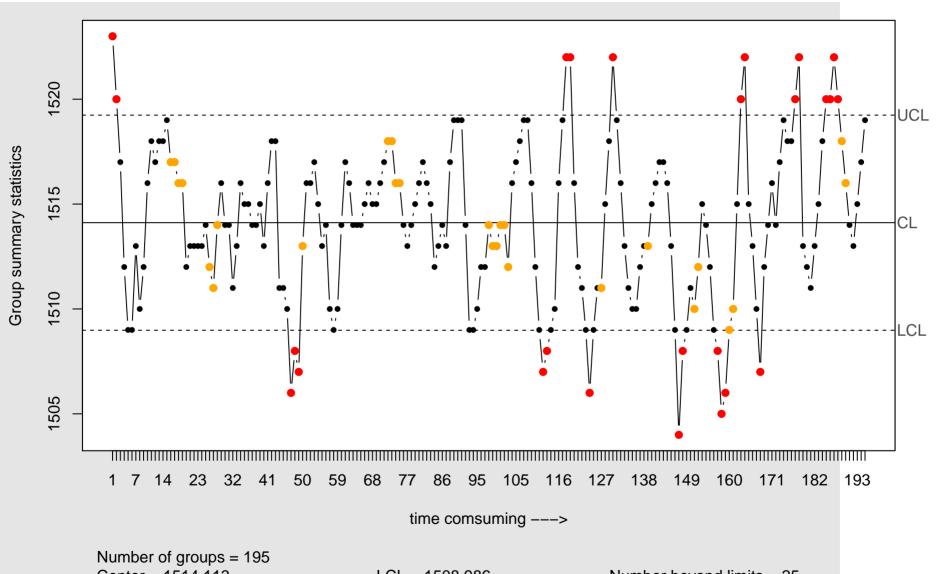
LCL = 1519.275 UCL = 1530.16

Number beyond limits = 30 Number violating runs = 25



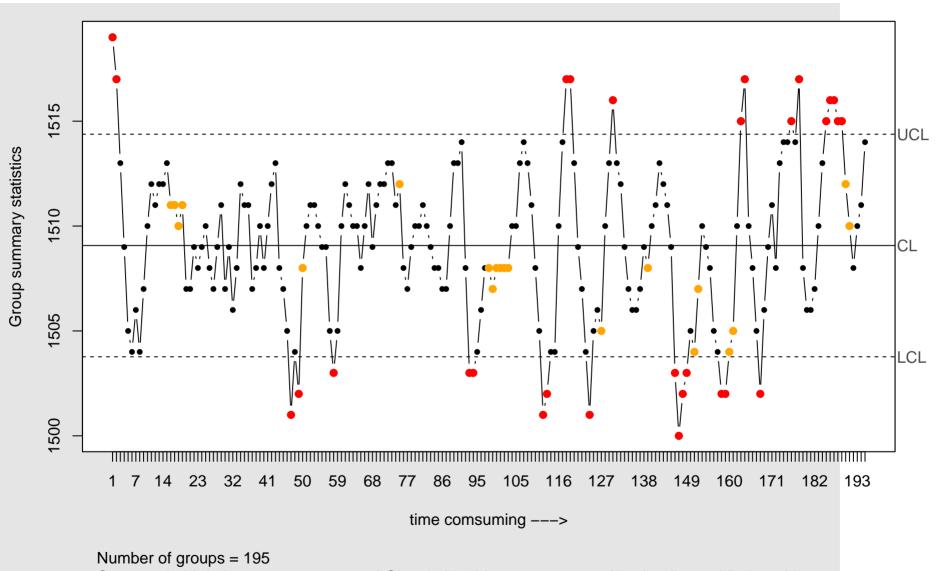
Number of groups = 195 Center = 1519.369 StdDev = 1.782189

LCL = 1514.023 UCL = 1524.716 Number beyond limits = 40 Number violating runs = 19



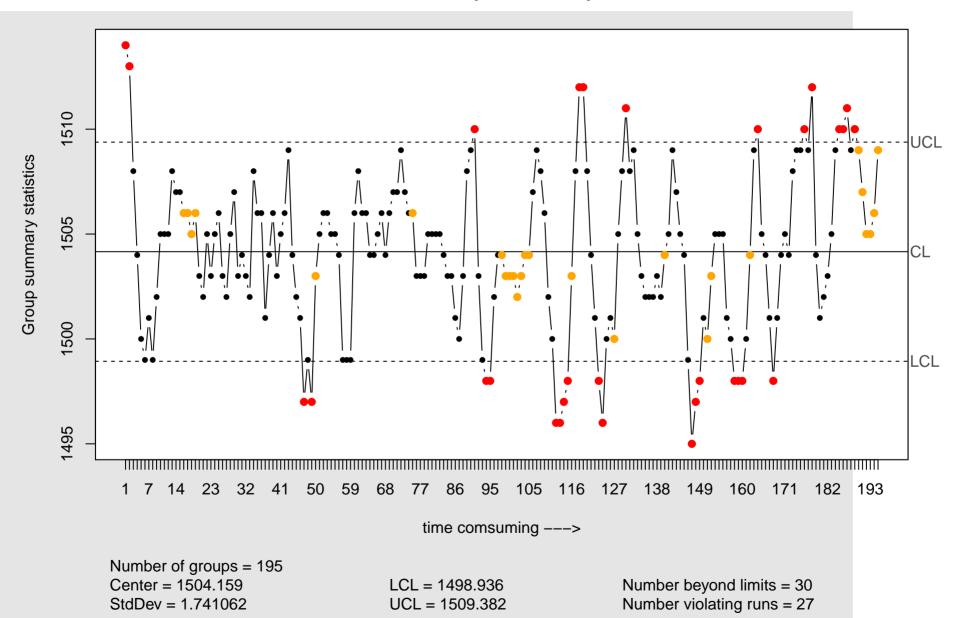
Number of groups = 195 Center = 1514.113 StdDev = 1.709074

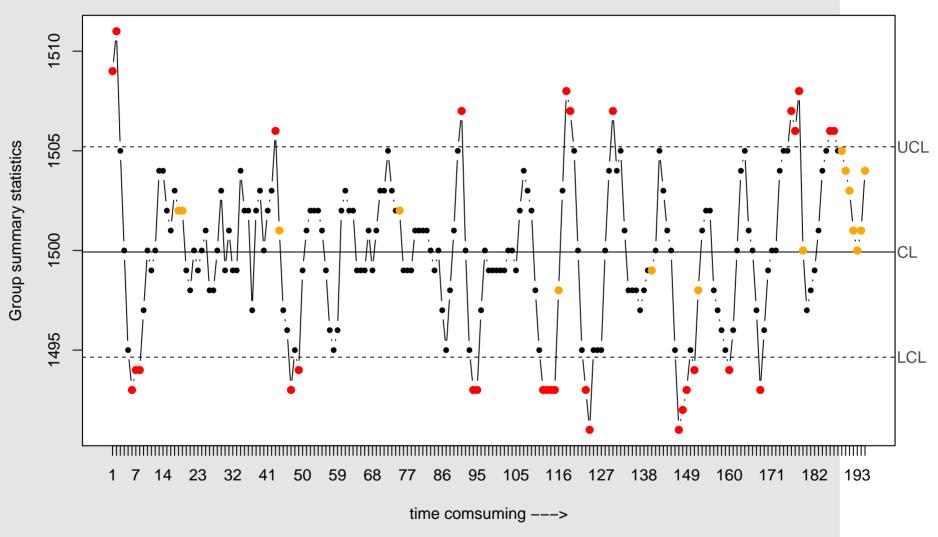
LCL = 1508.986 UCL = 1519.24 Number beyond limits = 25 Number violating runs = 26



Number of groups = 195 Center = 1509.072 StdDev = 1.76848

LCL = 1503.766 UCL = 1514.377 Number beyond limits = 29 Number violating runs = 21





Number of groups = 195

Center = 1499.923

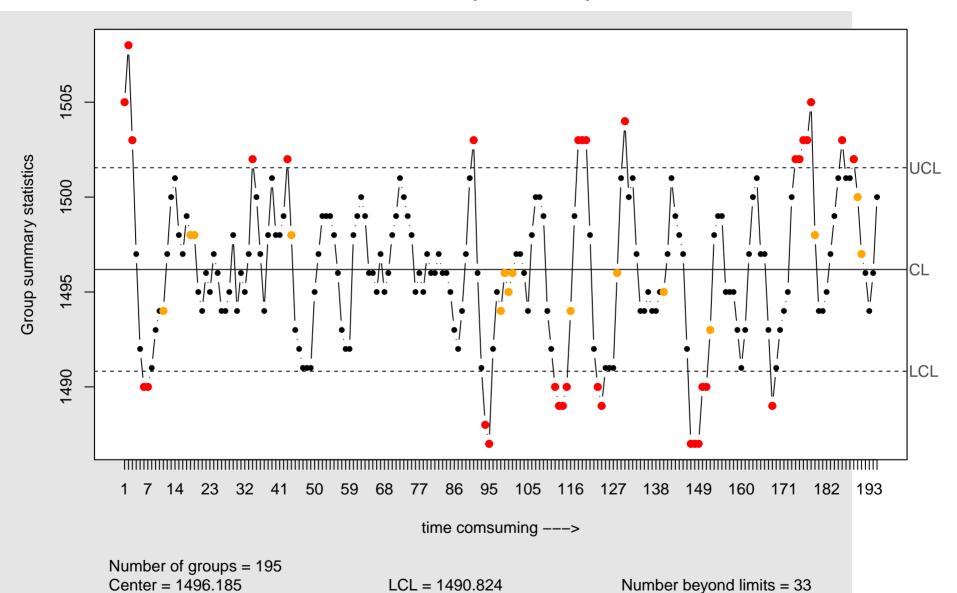
StdDev = 1.75934

LCL = 1494.645

UCL = 1505.201

Number beyond limits = 31

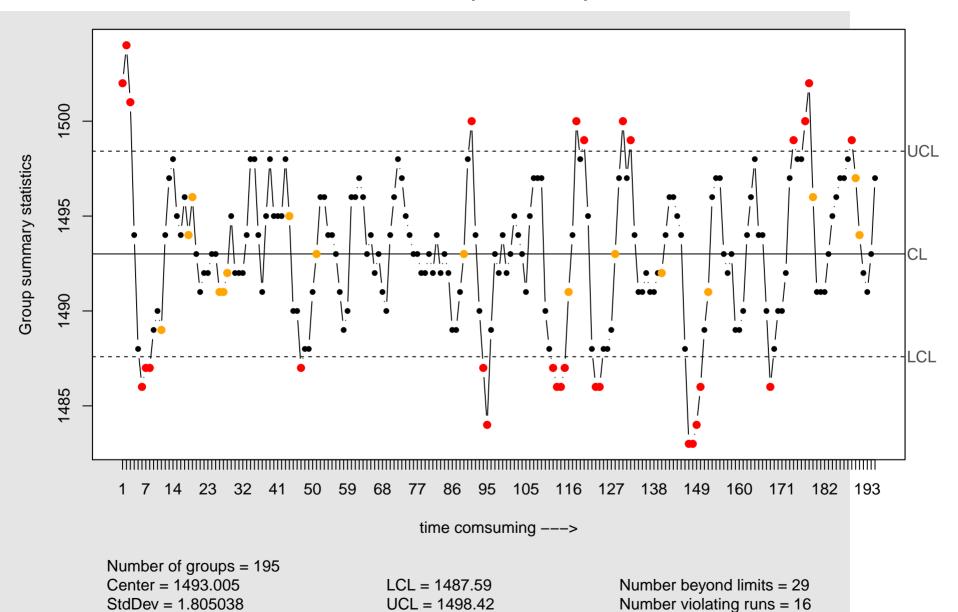
Number violating runs = 17

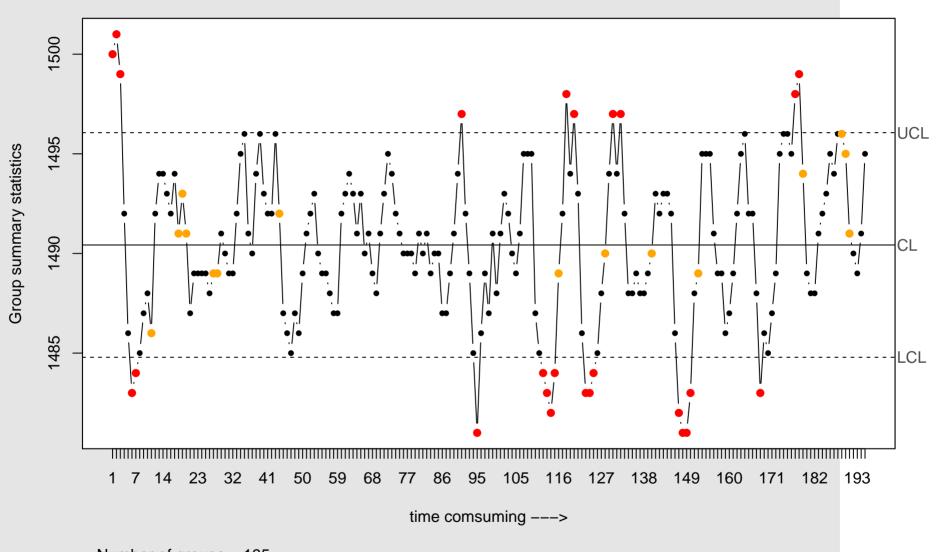


UCL = 1501.545

Number violating runs = 16

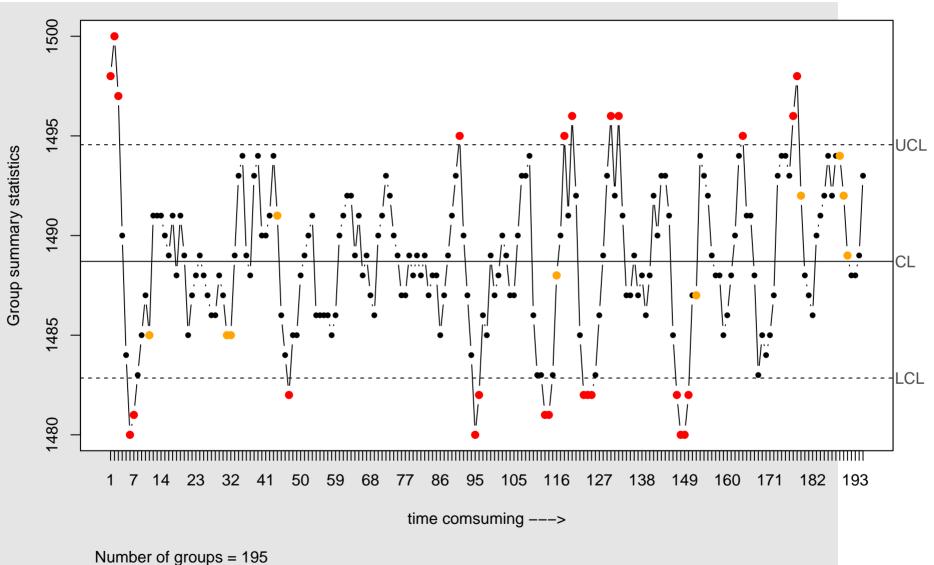
StdDev = 1.786759





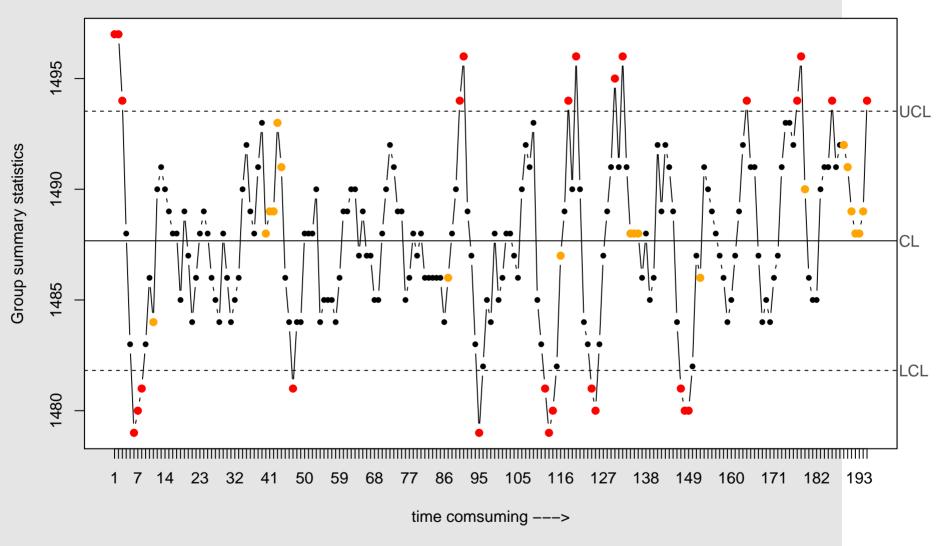
Number of groups = 195 Center = 1490.426 StdDev = 1.878153

LCL = 1484.791 UCL = 1496.06 Number beyond limits = 25 Number violating runs = 15



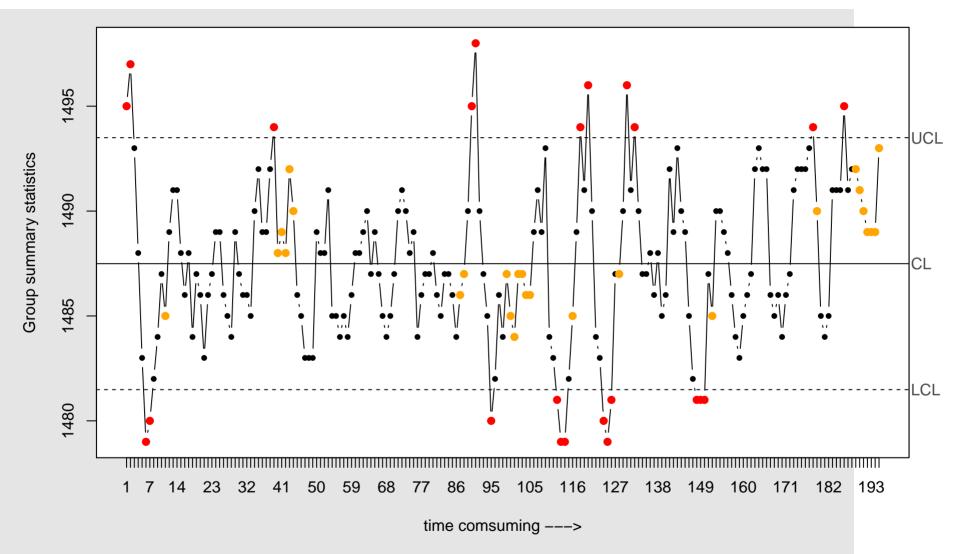
Number of groups = 195 Center = 1488.703 StdDev = 1.951269

LCL = 1482.849 UCL = 1494.556 Number beyond limits = 25 Number violating runs = 10



Number of groups = 195 Center = 1487.672 StdDev = 1.951269

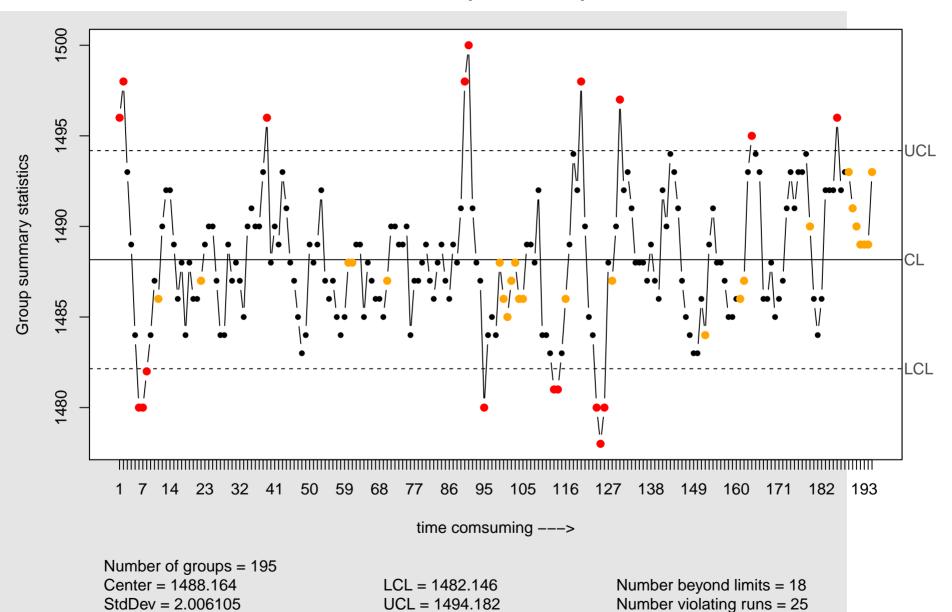
LCL = 1481.818 UCL = 1493.526 Number beyond limits = 27 Number violating runs = 20

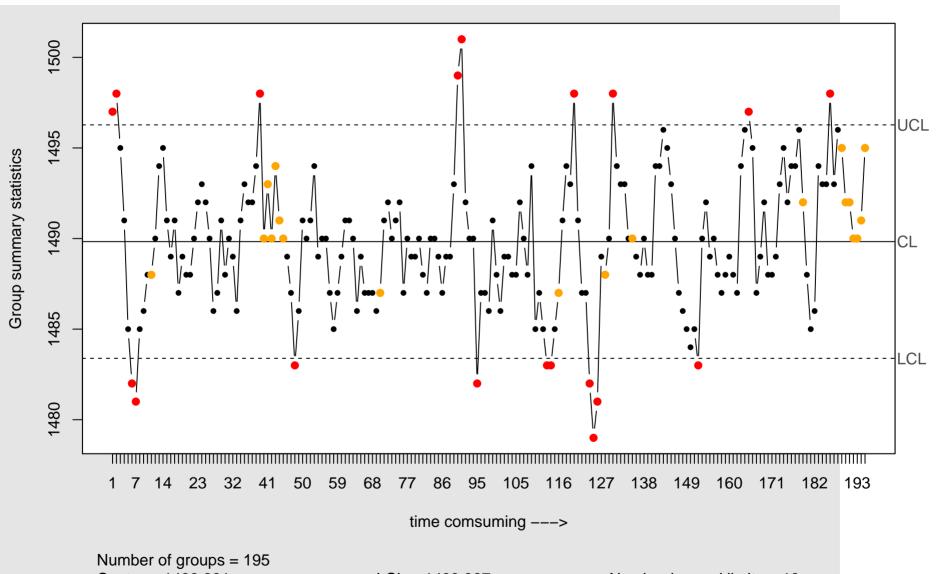


Number of groups = 195 Center = 1487.492

StdDev = 2.001535

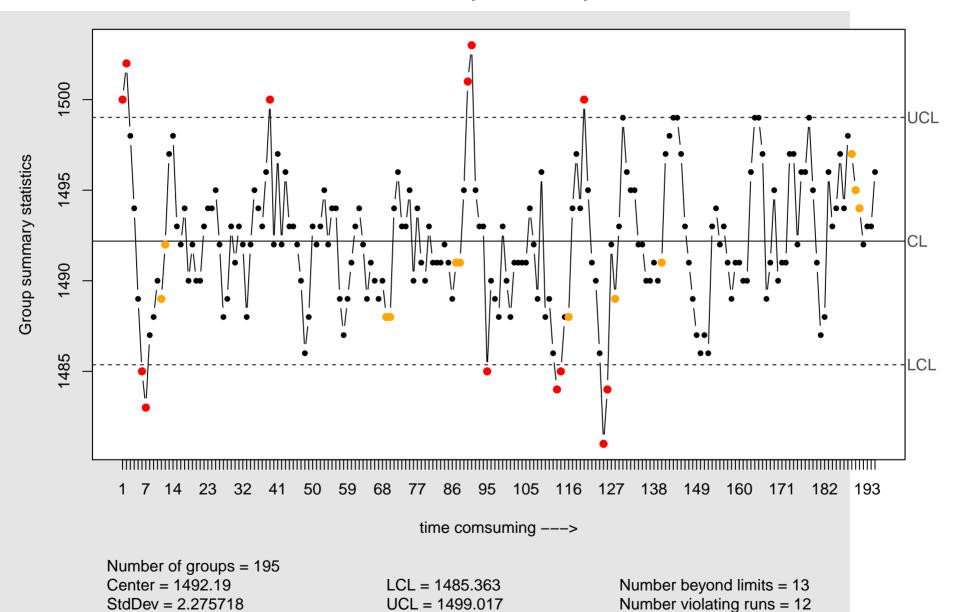
LCL = 1481.488 UCL = 1493.497 Number beyond limits = 23 Number violating runs = 26

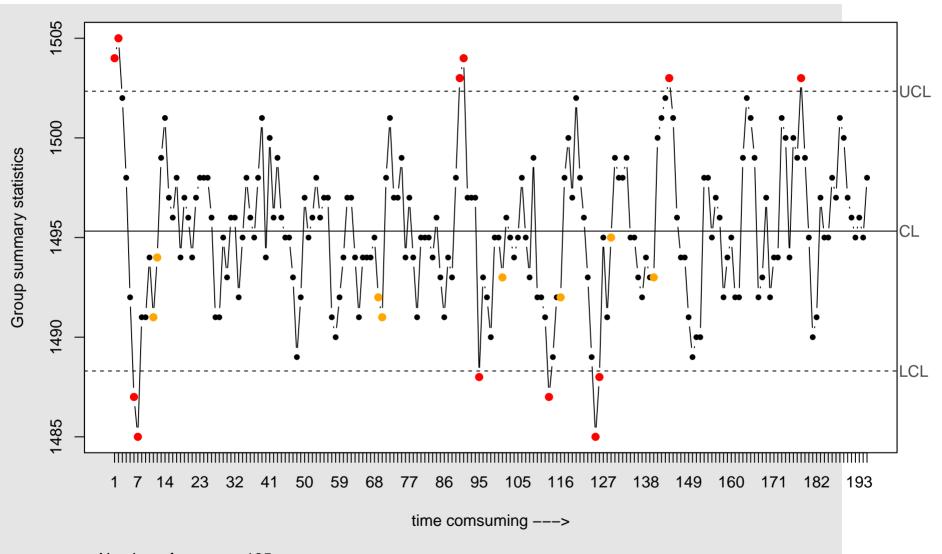




Number of groups = 195 Center = 1489.831 StdDev = 2.147766

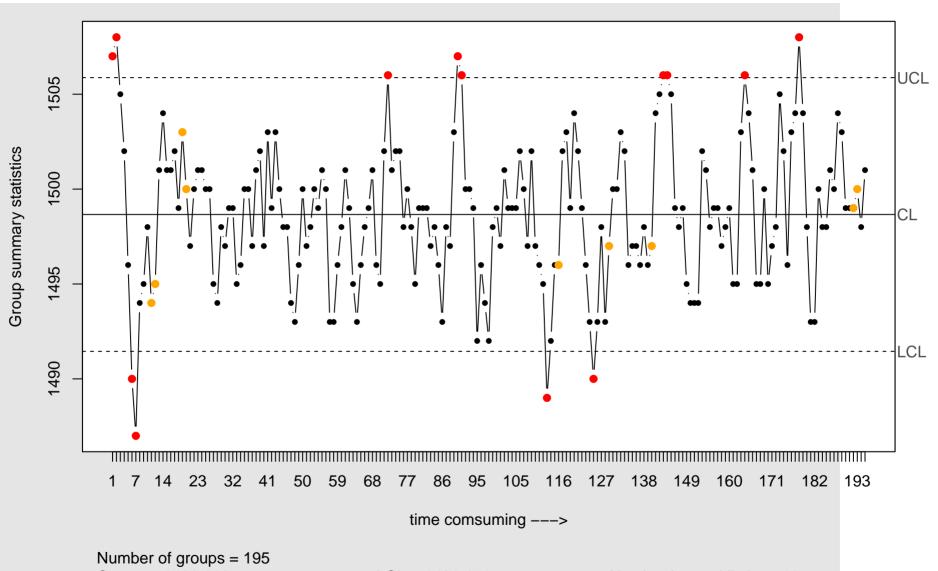
LCL = 1483.387 UCL = 1496.274 Number beyond limits = 19 Number violating runs = 19





Number of groups = 195 Center = 1495.323 StdDev = 2.339694

LCL = 1488.304 UCL = 1502.342 Number beyond limits = 12 Number violating runs = 8



Number of groups = 195 Center = 1498.662 StdDev = 2.40367

LCL = 1491.451 UCL = 1505.873 Number beyond limits = 13 Number violating runs = 9

