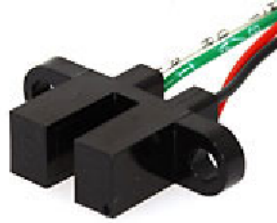


Table 1

Sensor Values for 1st Half Revolution
Optical Slotted Sensor: Optec OPB891T51Z

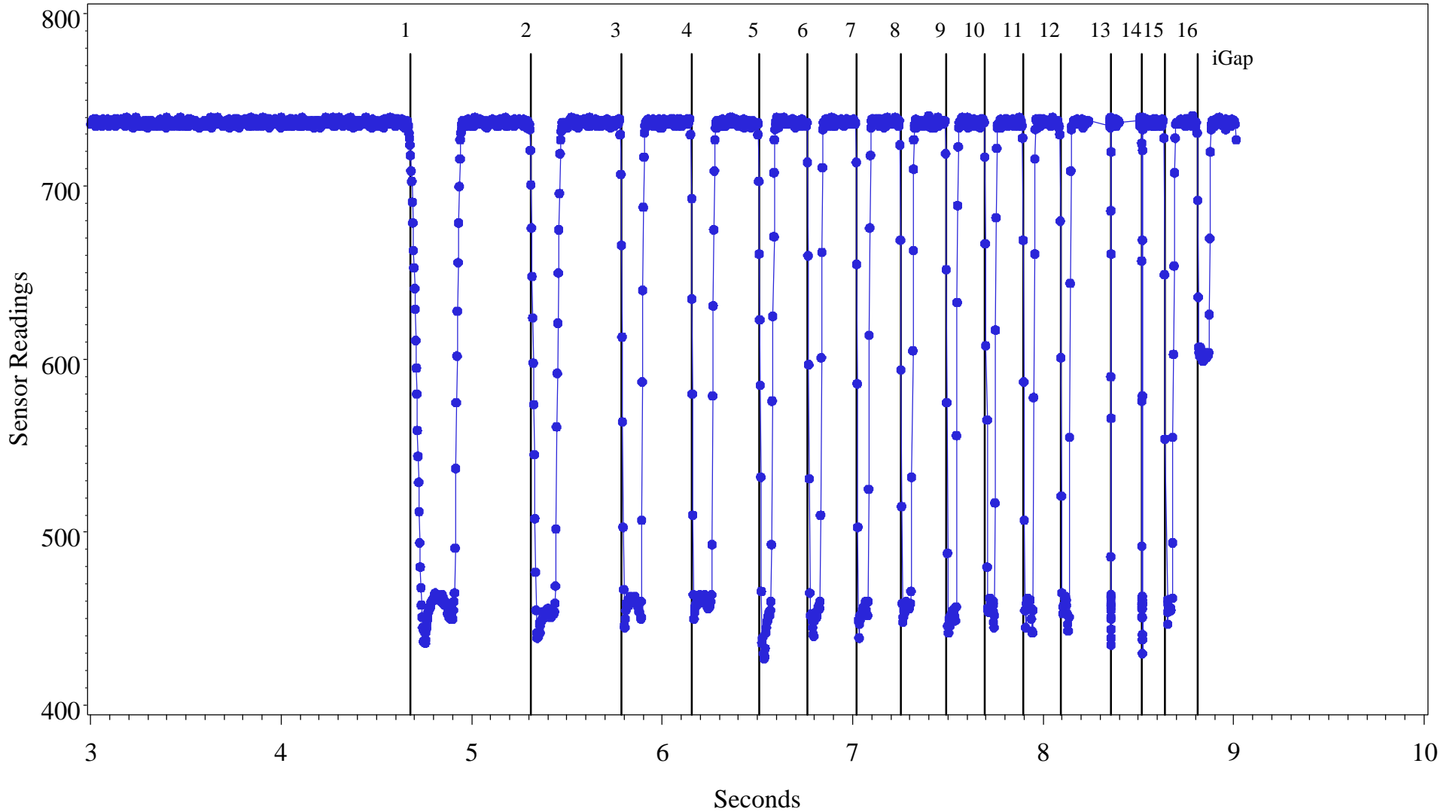


| Obs | recid | counter | timestamp | sensor | lasttime | inctime | difftime | inst_rpm | avg_rpm |
|-----|-------|---------|-----------------|--------|-----------------|----------|----------|----------|---------|
| 1 | 1249 | 1 | 1303134484.8030 | 718 | 1303134484.8030 | 1.3031E9 | 4.68000 | 0.0000 | 0.41356 |
| 2 | 1424 | 2 | 1303134485.4350 | 701 | 1303134485.4350 | 0.6320 | 5.31200 | 3.0625 | 0.72872 |
| 3 | 1556 | 3 | 1303134485.9070 | 707 | 1303134485.9070 | 0.4720 | 5.78400 | 4.1006 | 1.00388 |
| 4 | 1659 | 4 | 1303134486.2790 | 693 | 1303134486.2790 | 0.3720 | 6.15600 | 5.2029 | 1.25762 |
| 5 | 1751 | 5 | 1303134486.6310 | 703 | 1303134486.6310 | 0.3520 | 6.50800 | 5.4985 | 1.48700 |
| 6 | 1824 | 6 | 1303134486.8870 | 714 | 1303134486.8870 | 0.2560 | 6.76400 | 7.5605 | 1.71687 |
| 7 | 1901 | 7 | 1303134487.1430 | 714 | 1303134487.1430 | 0.2560 | 7.02000 | 7.5605 | 1.92997 |
| 8 | 1970 | 8 | 1303134487.3750 | 669 | 1303134487.3750 | 0.2320 | 7.25200 | 8.3426 | 2.13512 |
| 9 | 2037 | 9 | 1303134487.6120 | 719 | 1303134487.6120 | 0.2370 | 7.48900 | 8.1666 | 2.32599 |
| 10 | 2096 | 10 | 1303134487.8170 | 717 | 1303134487.8170 | 0.2050 | 7.69400 | 9.4414 | 2.51558 |
| 11 | 2154 | 11 | 1303134488.0190 | 669 | 1303134488.0190 | 0.2020 | 7.89600 | 9.5816 | 2.69634 |
| 12 | 2207 | 12 | 1303134488.2140 | 680 | 1303134488.2140 | 0.1950 | 8.09100 | 9.9256 | 2.87057 |
| 13 | 2257 | 13 | 1303134488.4790 | 686 | 1303134488.4790 | 0.2650 | 8.35600 | 7.3037 | 3.01116 |
| 14 | 2307 | 14 | 1303134488.6410 | 657 | 1303134488.6410 | 0.1620 | 8.51800 | 11.9474 | 3.18112 |

Notes: Source test_17.txt Start 8 seconds, Runtime 60 seconds.

Figure 2

Sensor Values for 1st half of a Revolution By Number of Seconds From Start

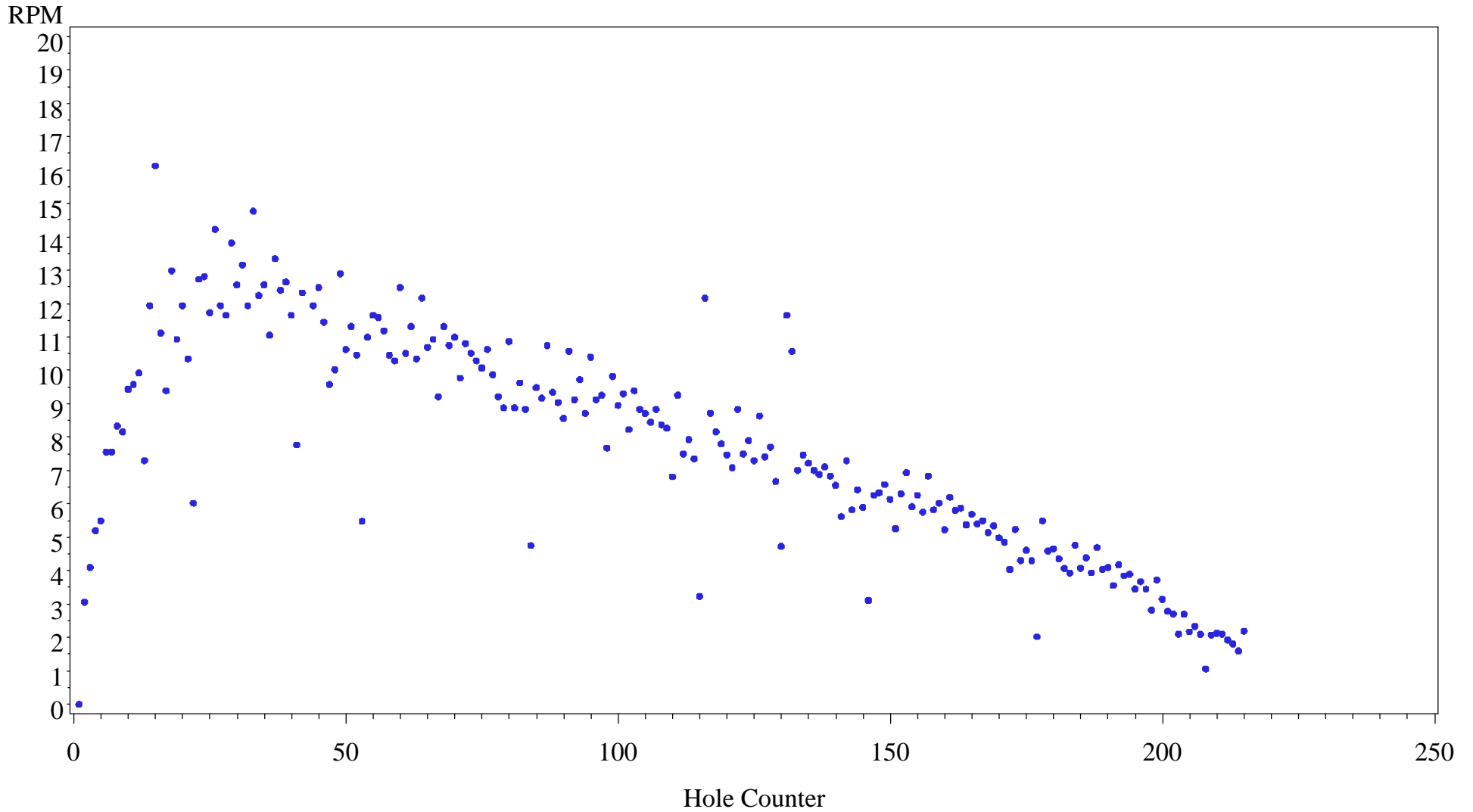


Notes: Source test_17.txt Start 8 seconds, Runtime 60 seconds.

Notes: iGap indicates where a hole is removed to index a complete revolution.

Figure 3

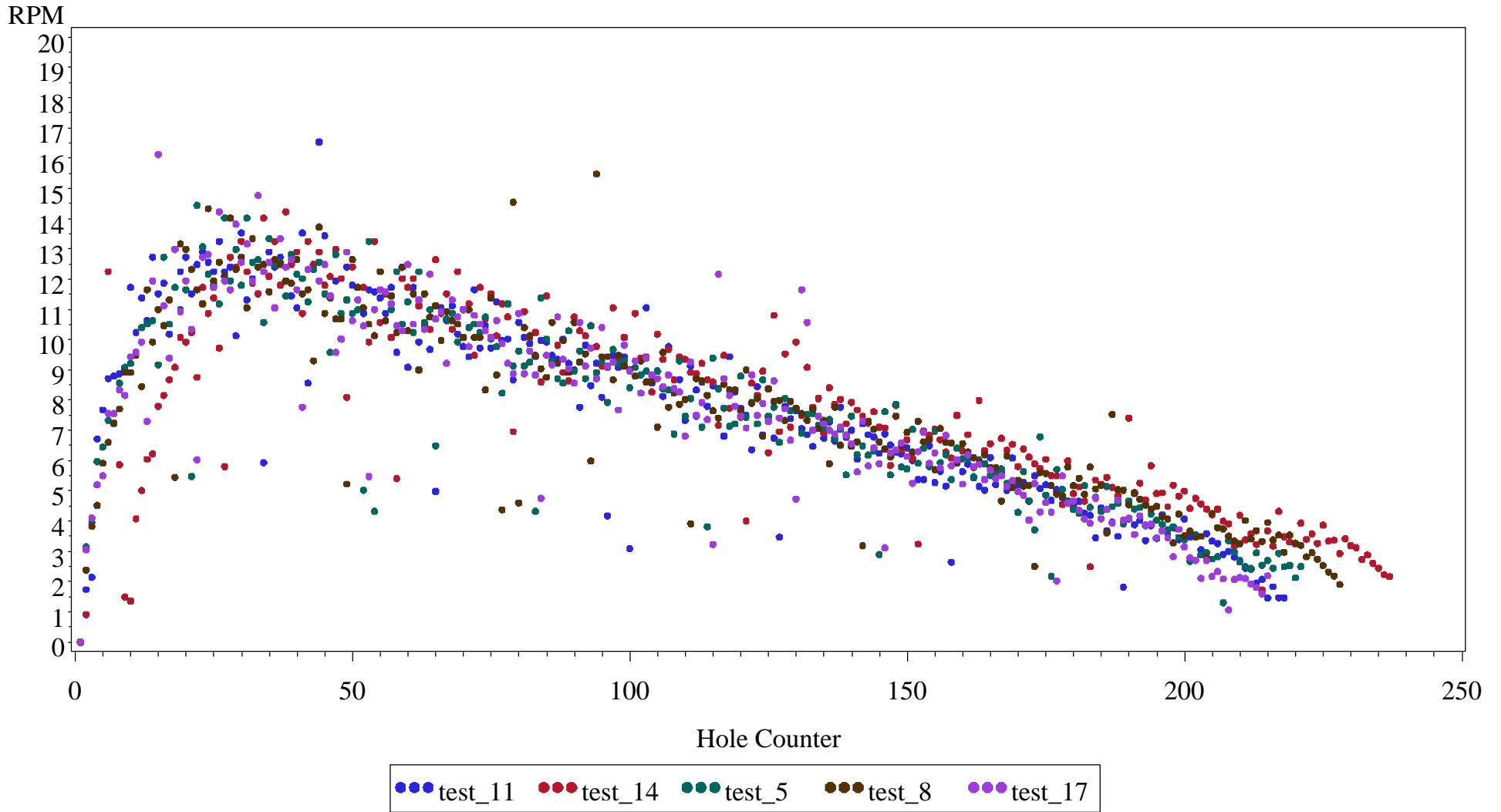
Revolutions Per Minute (RPM) History from Trial Run 17 Complete Run Profile - By Hole Counter



Notes: Source test_17.txt Start 8 seconds, Runtime 60 seconds.

Figure 4

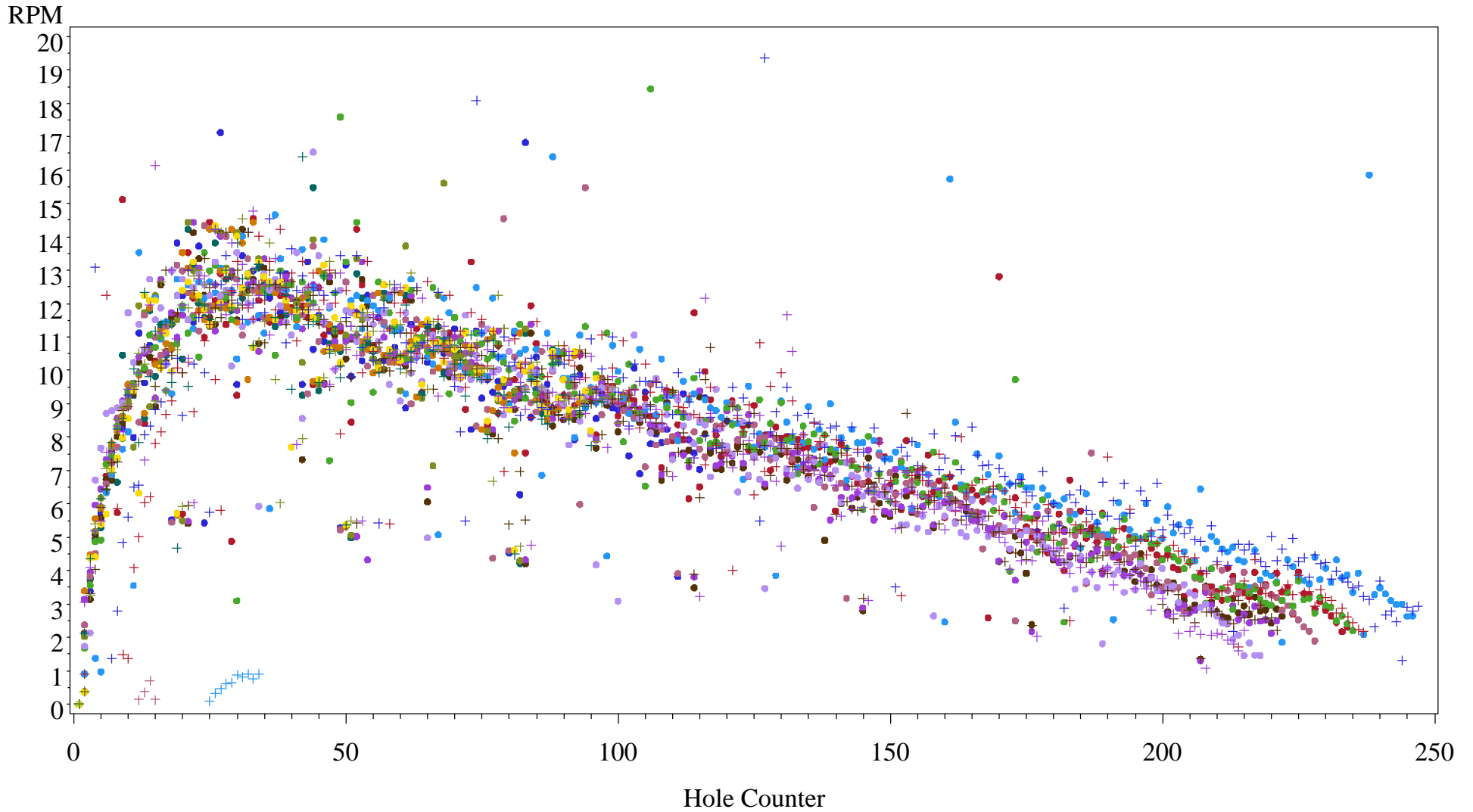
Revolutions Per Minute (RPM) History from Five Trial Runs Complete Run Profile - By Hole Counter



Notes: Start 8 seconds, Runtime 60 seconds.

Figure 5

Revolutions Per Minute (RPM) History from 30 Trial Runs Complete Run Profile - By Hole Counter



Notes: Start 8 seconds, Runtime 60 seconds.

Table 6

Estimated Instaneous RPM by Hole Counter
Starting at Counter=25

The REG Procedure
Model: MODEL1
Dependent Variable: inst_rpm

| | |
|-----------------------------|------|
| Number of Observations Read | 2774 |
| Number of Observations Used | 2774 |

| Analysis of Variance | | | | | |
|----------------------|------|----------------|-------------|---------|--------|
| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
| Model | 1 | 35905 | 35905 | 216.92 | <.0001 |
| Error | 2772 | 458823 | 165.52070 | | |
| Corrected Total | 2773 | 494729 | | | |

| | | | |
|----------------|-----------|----------|--------|
| Root MSE | 12.86548 | R-Square | 0.0726 |
| Dependent Mean | 8.90952 | Adj R-Sq | 0.0722 |
| Coeff Var | 144.40156 | | |

Notes: Start 8 seconds, Runtime 60 seconds.

Table 6

Estimated Instaneous RPM by Hole Counter
Starting at Counter=25

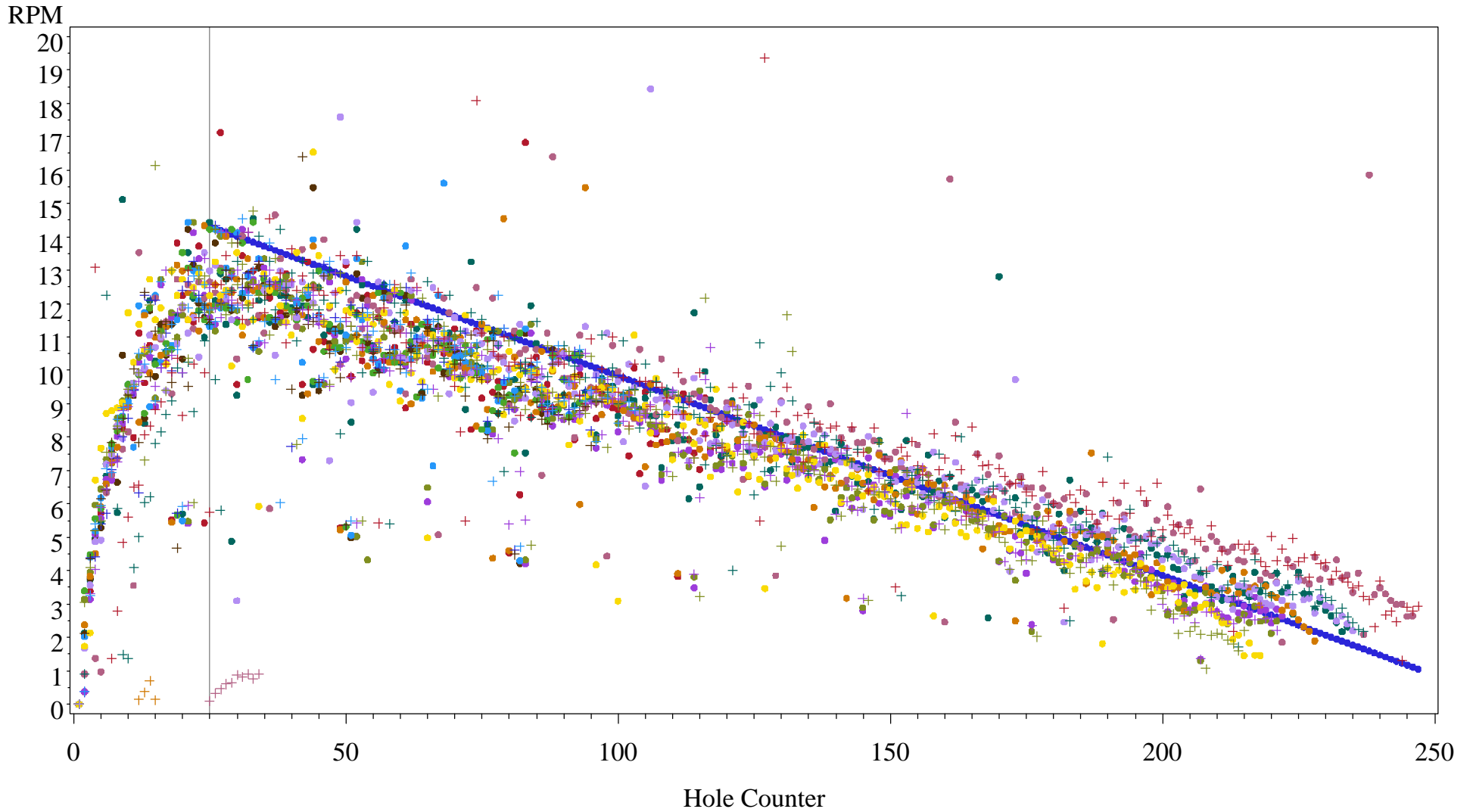
The REG Procedure
Model: MODEL1
Dependent Variable: inst_rpm

| Parameter Estimates | | | | | |
|---------------------|----|--------------------|----------------|---------|---------|
| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr > t |
| Intercept | 1 | 15.81441 | 0.52864 | 29.92 | <.0001 |
| counter | 1 | -0.05974 | 0.00406 | -14.73 | <.0001 |

Notes: Start 8 seconds, Runtime 60 seconds.

Figure 7

Actual and Predicted Instantaneous RPM by Hole Counter Predictions Starting at Counter=25



Notes: Start 8 seconds, Runtime 60 seconds.