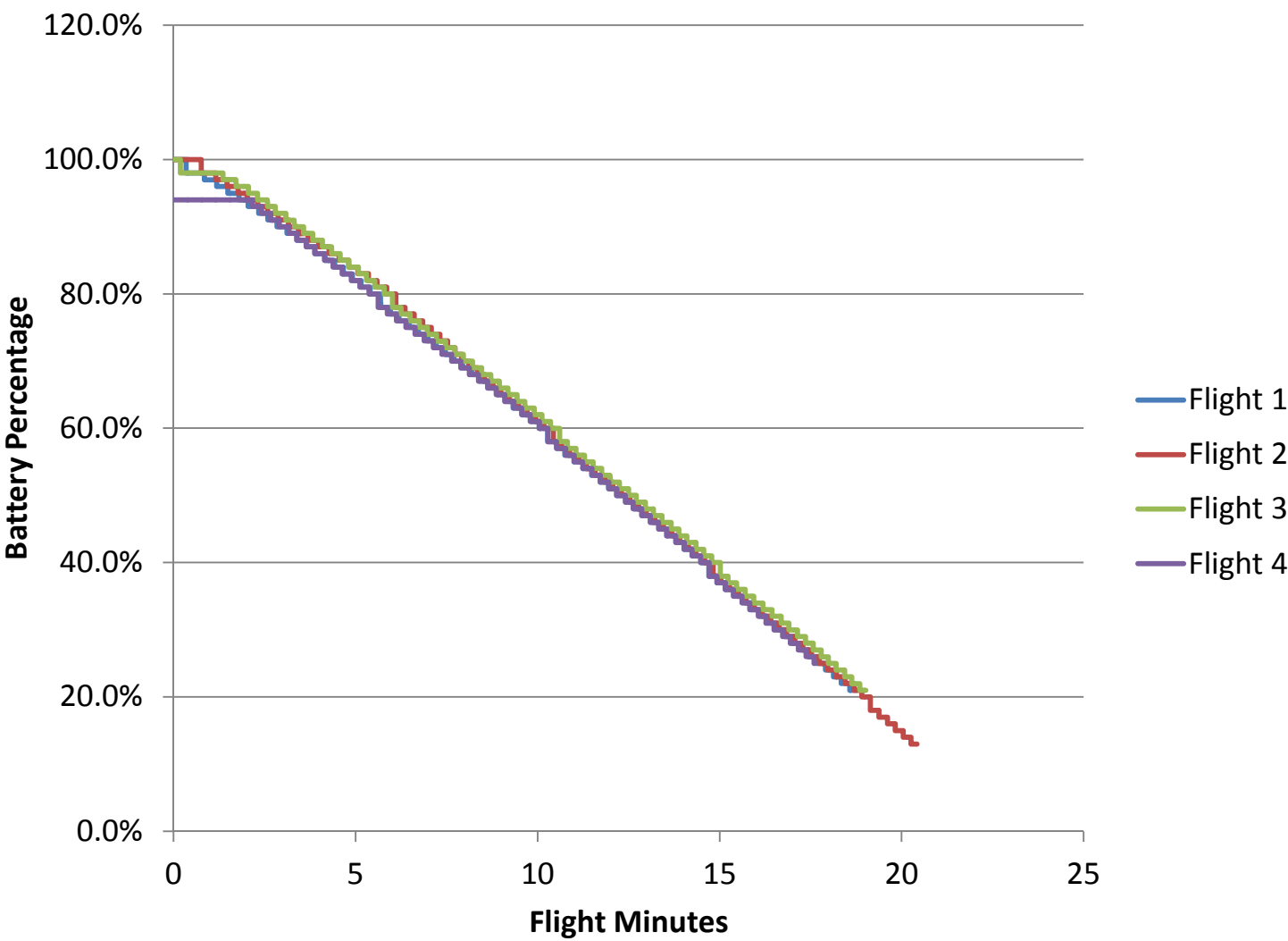


# Phantom 3 Battery Characterization

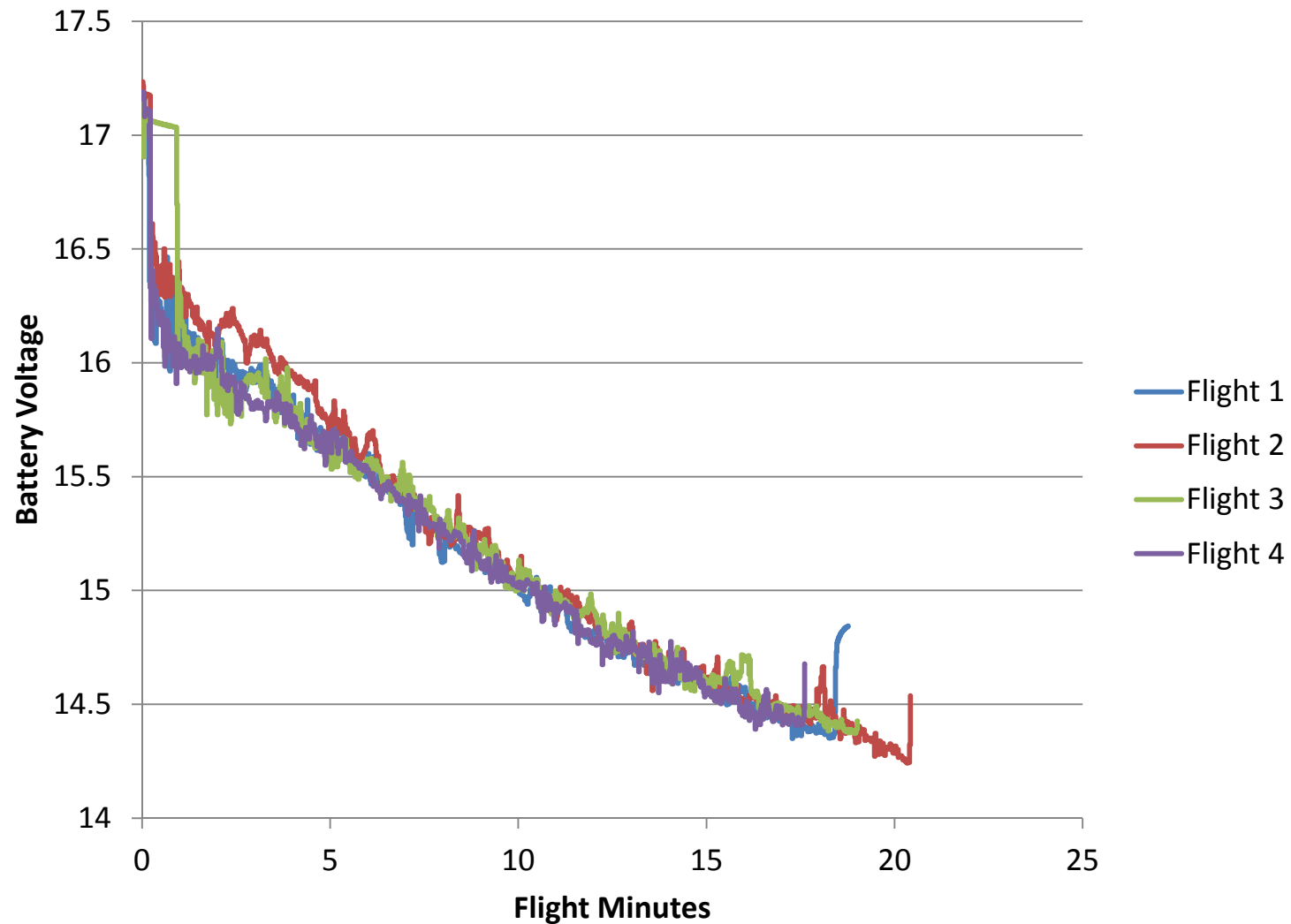
The following charts depict 4 normal continuous flights of a Phantom 3 in ambient 26.5°C (80°F)

- Guidelines for safe flight:
  - Always start with a fully charged battery and verify it is fully charged by checking that the voltage is over 17V before take off
  - After initial liftoff voltage should be over 16 V
  - Check voltage before takeoff and while in the air, the amount of voltage drop can reveal an issue with the battery
  - Land when voltage is 14.4 V or lower (cell voltage 3.6V)

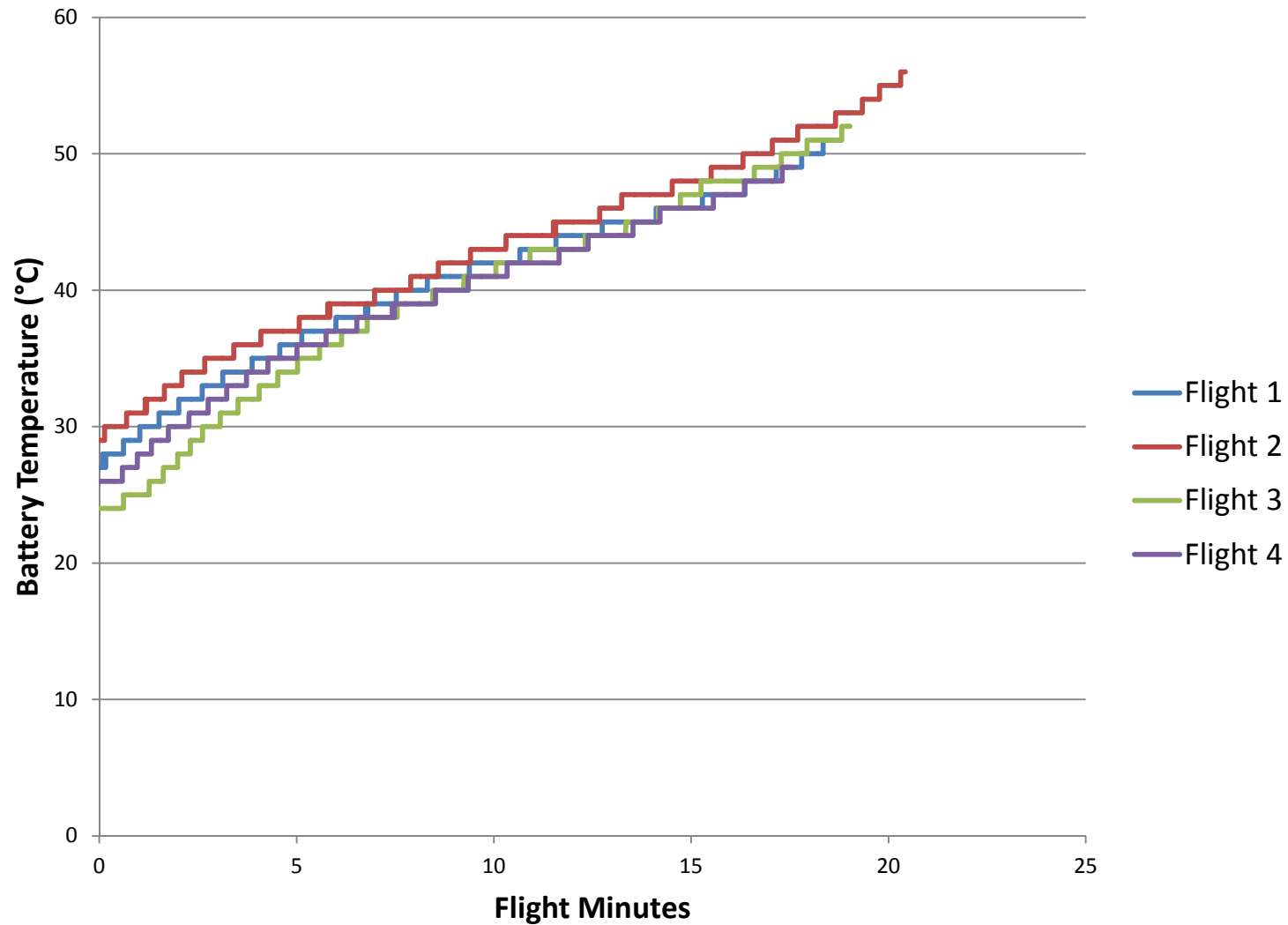
# Battery Percentage Versus Flight Time



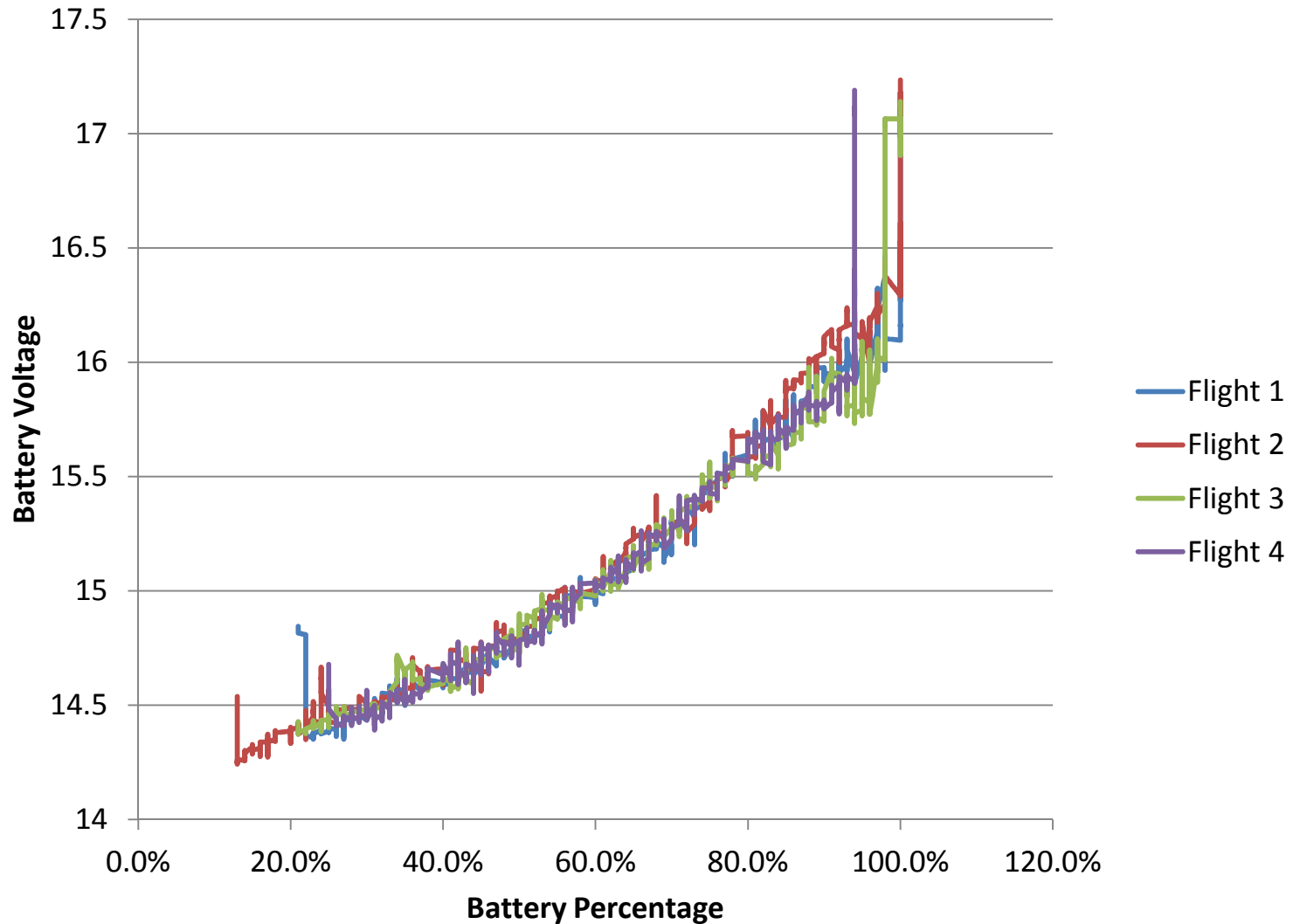
# Battery Voltage Versus Flight Time



# Battery Temperature Versus Flight Time



# Battery Voltage Versus Percentage



# Notes for Quick Reference Tables

- Battery voltage is while flying except for preflight, expect a drop on takeoff
- If voltage is at 14.4V or lower, land immediately
- Use tables to compare percentage and voltages, minor deviations are probably acceptable

# Quick Reference Tables

Flight Time (min)	Battery Percentage	Flying Battery Voltage (V)	Flying Cell Voltage (V)	Battery Temperature (°C)
Preflight	100%	17.1 - 17.2	4.28 - 4.31	Ambient
0 (liftoff)	100%	16.3 - 16.6	4.07 - 4.15	Ambient + 1 °C
5	82% - 84%	15.6 - 15.7	3.90 - 3.93	Ambient + 8 - 10 °C
10	61% - 62%	15.0 - 15.1	3.75 - 3.77	Ambient + 14 - 17 °C
15	37 % - 40%	14.6	3.64 - 3.65	Ambient + 19 - 23 °C
20	15%	14.3	3.57	Ambient + 27 °C

Battery Percentage	Flying Battery Voltage (V)	Flying Cell Voltage (V)
100% (preflight)	17.1 - 17.2	4.28 - 4.31
100% (liftoff)	16.3 - 16.6	4.07 - 4.15
90%	15.8 - 16.1	3.96 - 4.04
80%	15.5 - 15.7	3.88 - 3.92
70%	15.3	3.82 - 3.83
60%	15	3.75 - 3.76
50%	14.8	3.69 - 3.70
40%	14.6	3.65 - 3.66
30%	14.5	3.62 - 3.63
20%	14.4	3.6