

Tool info

Serial API: 1:1.0
Board: Custom STM32F401RE thrustBoard v2
Firmware: thrust++ : ChibiOS RT 7.1.0 : HAL 8.1.0
Commit: [0ea573c] : Sep 15 2022 - 20:11:16

Measurement info

Motor: Dualsky 2814 V2
KV: 970
Magnet poles: 14
Propeler: Aeronaut CamZ 12x6 fold
Blade count: 2
Note: Battery 3S.

Measurement Results 1:

| Output [%] | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff [G/W] |
|------------|------------|---------|---------------|---------|-------------|---------|-------------|---------|-------------|---------|---------|-----------------|
| | mean | std dev | mean | std dev | mean | std dev | mean | std dev | mean | std dev | | |
| 20 | 88.99 | 2.243 | 213.81 | 1.999 | 1720 | 60.3 | 12.311 | 0.0041 | 0.660 | 0.0441 | 8.128 | 10.948 |
| 30 | 177.22 | 2.230 | 425.87 | 1.863 | 2507 | 60.4 | 12.285 | 0.0048 | 1.524 | 0.0380 | 18.728 | 9.462 |
| 40 | 361.10 | 2.249 | 756.64 | 1.919 | 3442 | 61.7 | 12.223 | 0.0043 | 3.348 | 0.0586 | 40.929 | 8.823 |
| 50 | 602.67 | 2.210 | 1207.94 | 2.476 | 4378 | 64.0 | 12.125 | 0.0065 | 6.429 | 0.0650 | 77.954 | 7.731 |
| 60 | 873.73 | 2.279 | 1745.68 | 2.109 | 5244 | 70.0 | 11.976 | 0.0111 | 10.742 | 0.0739 | 128.651 | 6.791 |
| 70 | 1138.68 | 2.418 | 2274.42 | 6.415 | 5954 | 71.0 | 11.793 | 0.0114 | 15.719 | 0.0746 | 185.369 | 6.143 |
| 80 | 1368.70 | 4.433 | 2778.03 | 8.455 | 6584 | 73.2 | 11.577 | 0.0123 | 21.616 | 0.0831 | 250.248 | 5.469 |
| 90 | 1593.75 | 4.502 | 3262.26 | 12.418 | 7085 | 70.7 | 11.336 | 0.0114 | 28.229 | 0.1227 | 319.997 | 4.981 |
| 100 | 1816.87 | 5.356 | 3671.65 | 16.864 | 7515 | 76.8 | 11.070 | 0.0121 | 35.296 | 0.1922 | 390.715 | 4.650 |

Measurement Results 2:

| Output [%] | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff [G/W] |
|------------|------------|---------|---------------|---------|-------------|---------|-------------|---------|-------------|---------|---------|-----------------|
| | mean | std dev | mean | std dev | mean | std dev | mean | std dev | mean | std dev | | |
| 20 | 87.92 | 3.412 | 211.90 | 3.816 | 1662 | 10.0 | 12.086 | 0.0044 | 0.661 | 0.0367 | 7.984 | 11.011 |
| 30 | 171.33 | 3.208 | 421.55 | 3.778 | 2453 | 8.8 | 12.065 | 0.0050 | 1.541 | 0.0370 | 18.596 | 9.213 |
| 40 | 352.71 | 3.175 | 749.65 | 3.801 | 3385 | 16.3 | 12.007 | 0.0060 | 3.352 | 0.0538 | 40.245 | 8.764 |
| 50 | 600.47 | 3.142 | 1191.60 | 3.925 | 4308 | 23.2 | 11.919 | 0.0068 | 6.406 | 0.0646 | 76.351 | 7.865 |
| 60 | 847.84 | 3.450 | 1690.50 | 4.301 | 5135 | 24.5 | 11.778 | 0.0101 | 10.438 | 0.0539 | 122.937 | 6.897 |
| 70 | 1098.59 | 3.955 | 2201.00 | 5.904 | 5852 | 41.1 | 11.614 | 0.0073 | 15.309 | 0.0934 | 177.798 | 6.179 |
| 80 | 1324.47 | 3.463 | 2682.28 | 8.804 | 6454 | 38.7 | 11.423 | 0.0119 | 21.010 | 0.0768 | 239.990 | 5.519 |
| 90 | 1557.88 | 5.493 | 3146.38 | 8.711 | 6954 | 38.8 | 11.195 | 0.0126 | 27.477 | 0.1075 | 307.614 | 5.064 |
| 100 | 1753.64 | 5.939 | 3525.73 | 21.408 | 7360 | 49.7 | 10.940 | 0.0118 | 34.064 | 0.2297 | 372.653 | 4.706 |

Measurement Results 3:

| Output [%] | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff [G/W] |
|------------|------------|---------|---------------|---------|-------------|---------|-------------|---------|-------------|---------|---------|-----------------|
| | mean | std dev | mean | std dev | mean | std dev | mean | std dev | mean | std dev | | |
| 20 | 78.42 | 4.449 | 206.05 | 5.007 | 1642 | 13.3 | 11.906 | 0.0060 | 0.687 | 0.0417 | 8.177 | 9.590 |
| 30 | 154.85 | 4.060 | 411.51 | 4.726 | 2417 | 11.4 | 11.885 | 0.0045 | 1.506 | 0.0313 | 17.902 | 8.650 |
| 40 | 339.29 | 4.012 | 732.85 | 4.730 | 3347 | 14.9 | 11.829 | 0.0059 | 3.296 | 0.0505 | 38.983 | 8.703 |
| 50 | 572.72 | 4.002 | 1157.16 | 4.795 | 4252 | 22.9 | 11.739 | 0.0073 | 6.156 | 0.0514 | 72.265 | 7.925 |
| 60 | 820.20 | 4.461 | 1654.26 | 5.459 | 5056 | 42.6 | 11.602 | 0.0111 | 10.207 | 0.0618 | 118.421 | 6.926 |
| 70 | 1061.99 | 4.980 | 2141.33 | 6.230 | 5757 | 48.1 | 11.430 | 0.0120 | 14.940 | 0.0610 | 170.764 | 6.219 |
| 80 | 1298.50 | 5.109 | 2615.02 | 7.356 | 6366 | 48.9 | 11.247 | 0.0095 | 20.592 | 0.0518 | 231.602 | 5.607 |
| 90 | 1509.07 | 4.633 | 3075.54 | 12.963 | 6885 | 43.5 | 11.040 | 0.0124 | 26.937 | 0.1189 | 297.377 | 5.075 |
| 100 | 1712.52 | 6.884 | 3496.72 | 19.577 | 7305 | 37.6 | 10.802 | 0.0138 | 33.851 | 0.2458 | 365.640 | 4.684 |

Plots for Measurement Results:

