

Tool info

Serial API: 1:1.0
Board: Custom STM32F401RE thrustBoard v2
Firmware: thrust++ : ChibiOS RT 7.1.0 : HAL 8.1.0
Commit: [cbca101] : Apr 10 2023 - 16:52:42

Measurement info

Motor: Dualsky ECO2814C V2
KV: 970
Magnet poles: 14
Propeler: CamZ 10x7 fold
Blade count: 2
Note: Battery 4S 2200mAh

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	78.36	3.934	290.07	3.961	2457	11.9	16.735	0.0038	0.915	0.0386	15.318	5.115
30	210.21	3.930	643.94	4.047	3612	22.2	16.675	0.0065	2.267	0.0486	37.804	5.561
40	408.79	3.944	1081.30	4.014	4805	26.7	16.566	0.0072	4.653	0.0469	77.088	5.303
50	621.39	3.953	1526.42	4.428	5782	43.0	16.406	0.0093	8.001	0.0605	131.274	4.734
60	808.95	3.944	1976.65	6.516	6591	90.3	16.207	0.0143	12.296	0.0555	199.289	4.059
70	1091.44	4.430	2617.20	5.348	7589	108.2	15.908	0.0180	18.520	0.0833	294.621	3.705
80	1426.14	7.577	3369.66	11.589	8517	53.9	15.526	0.0176	26.421	0.1275	410.214	3.477
90	1659.20	8.941	3930.75	23.031	9176	51.1	15.142	0.0197	34.321	0.1932	519.692	3.193
100	1812.12	13.924	4325.93	33.741	9615	58.3	14.762	0.0198	41.898	0.2748	618.486	2.930

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	77.56	4.210	285.87	4.844	2409	10.5	16.329	0.0040	0.862	0.0221	14.082	5.508
30	202.02	4.230	623.09	5.033	3545	19.1	16.279	0.0057	2.220	0.0305	36.132	5.591
40	392.34	4.217	1039.06	5.437	4711	30.7	16.185	0.0062	4.491	0.0383	72.692	5.397
50	599.35	4.242	1462.49	5.533	5663	45.8	16.053	0.0082	7.700	0.0546	123.601	4.849
60	791.95	4.221	1908.82	6.713	6468	71.0	15.874	0.0138	11.876	0.0624	188.525	4.201
70	1060.55	4.870	2543.40	5.573	7484	126.0	15.619	0.0168	18.123	0.1086	283.068	3.747
80	1365.66	6.470	3254.69	15.926	8404	79.3	15.269	0.0253	25.732	0.1512	392.906	3.476
90	1590.45	11.993	3797.64	25.589	9039	52.1	14.899	0.0199	33.311	0.2220	496.306	3.205
100	1755.50	13.999	4194.32	29.379	9512	46.5	14.552	0.0185	40.811	0.2617	593.893	2.956

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	71.98	6.384	274.23	6.138	2369	11.0	15.930	0.0052	0.878	0.0309	13.993	5.144
30	188.69	6.384	598.17	6.372	3454	19.9	15.882	0.0065	2.155	0.0379	34.221	5.514
40	369.61	6.390	996.29	6.256	4591	24.3	15.797	0.0054	4.315	0.0405	68.159	5.423
50	564.03	6.414	1390.74	6.454	5515	23.3	15.675	0.0078	7.311	0.0571	114.596	4.922
60	763.37	6.403	1845.82	6.434	6354	44.4	15.508	0.0152	11.506	0.0491	178.432	4.278
70	1036.16	6.534	2492.83	7.142	7344	118.4	15.266	0.0137	17.712	0.0837	270.401	3.832
80	1344.80	8.667	3202.04	12.008	8280	103.3	14.975	0.0147	25.278	0.1568	378.532	3.553
90	1570.11	11.294	3747.24	20.540	8940	48.8	14.653	0.0190	32.905	0.1945	482.143	3.257
100	1732.28	11.346	4135.78	24.038	9422	47.8	14.330	0.0169	40.305	0.2065	577.588	2.999

Measurement Results 4:

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	62.66	5.061	263.69	6.139	2340	10.9	15.694	0.0056	0.848	0.0286	13.316	4.706
30	175.05	5.153	575.86	6.395	3404	16.1	15.647	0.0063	2.093	0.0399	32.752	5.345
40	350.72	5.059	975.51	6.173	4530	21.5	15.567	0.0075	4.219	0.0436	65.676	5.340
50	541.84	5.091	1361.10	7.515	5444	36.1	15.444	0.0094	7.203	0.0449	111.245	4.871
60	738.70	5.059	1805.39	6.702	6262	72.0	15.275	0.0165	11.235	0.0509	171.608	4.305
70	1016.00	5.107	2452.74	6.730	7288	107.3	15.045	0.0151	17.386	0.1012	261.580	3.884
80	1319.51	6.594	3144.77	10.667	8287	85.2	14.777	0.0151	24.780	0.1100	366.186	3.603
90	1543.08	10.963	3687.41	17.583	8914	55.6	14.474	0.0177	32.346	0.1845	468.185	3.296
100	1714.07	9.252	4109.67	16.482	9409	47.1	14.175	0.0139	39.907	0.1583	565.694	3.030

Measurement Results 5:

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	61.44	5.539	259.77	8.043	2304	10.9	15.406	0.0052	0.822	0.0336	12.658	4.854
30	169.89	5.539	564.58	8.064	3347	14.9	15.371	0.0054	2.026	0.0386	31.136	5.456
40	337.91	5.537	952.74	8.099	4449	27.7	15.298	0.0059	4.108	0.0384	62.843	5.377
50	519.85	5.639	1317.77	8.130	5342	40.0	15.197	0.0071	7.000	0.0543	106.375	4.887
60	726.34	5.676	1764.83	8.466	6233	64.1	15.057	0.0136	10.969	0.0461	165.151	4.398
70	1000.49	5.608	2415.49	12.743	7249	112.0	14.847	0.0111	17.169	0.1174	254.907	3.925
80	1289.23	8.573	3077.39	11.589	8164	106.7	14.597	0.0151	24.332	0.1224	355.167	3.630
90	1507.57	8.012	3609.56	16.451	8829	36.1	14.326	0.0142	31.765	0.1626	455.070	3.313
100	1690.57	7.736	4046.36	11.760	9308	61.9	14.046	0.0117	39.428	0.1363	553.794	3.053

Plots for Measurement Results:

