Tool info

Serial API :	1:1.0
Board :	Custom STM32F401RE thrustBoard v2
Firmware :	thrust++ : ChibiOS RT 7.1.0 : HAL 8.1.0
Commit :	[28e06d2] : Mar 20 2022 - 17:31:34

Measurement info

Motor :	T-Motor F1507
KV :	2700
Magnet poles :	14
Propeler :	HQProp Duct 76mmx8
Blade number :	8
Note :	without duct

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	30.04	0.208	49.06	0.202	8138	121.4	16.668	0.0072	0.408	0.0121	6.800	4.417
25	47.24	0.273	73.99	0.350	9842	80.8	16.649	0.0073	0.664	0.0181	11.058	4.273
30	66.96	0.173	103.19	0.222	11444	115.9	16.627	0.0081	0.988	0.0145	16.424	4.077
35	85.92	0.248	131.30	0.202	12763	243.4	16.601	0.0075	1.346	0.0201	22.352	3.844
40	106.30	0.386	163.26	0.409	14104	252.7	16.567	0.0074	1.766	0.0253	29.257	3.633
45	125.50	0.404	195.91	0.415	15512	376.6	16.529	0.0099	1.924	0.0267	31.798	3.947
50	144.74	2.850	234.91	1.405	16786	404.6	16.480	0.0082	1.971	0.0373	32.486	4.456
55	181.63	0.499	275.72	0.804	18267	291.4	16.427	0.0127	2.083	0.0535	34.224	5.307
60	211.97	1.136	325.09	1.014	19533	583.1	16.358	0.0109	2.317	0.0438	37.908	5.592
65	243.71	0.752	369.21	1.334	20708	426.4	16.284	0.0133	2.926	0.0548	47.641	5.115
70	278.24	0.840	411.30	1.363	22175	511.6	16.196	0.0127	3.798	0.0963	61.514	4.523
75	309.61	2.277	463.93	3.978	23169	449.1	16.097	0.0126	5.096	0.0732	82.030	3.774
80	339.82	3.009	514.46	4.794	24354	545.8	15.990	0.0097	6.883	0.0699	110.062	3.088
90	410.71	2.651	602.54	5.925	26446	456.2	15.806	0.0173	11.040	0.1127	174.498	2.354
100	460.15	3.974	689.96	7.139	27885	318.5	15.596	0.0183	15.245	0.1090	237.763	1.935

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	29.79	0.943	44.98	1.664	7979	78.0	16.417	0.0075	0.386	0.0123	6.345	4.695
25	46.16	0.961	69.41	1.664	9719	124.3	16.399	0.0096	0.634	0.0181	10.399	4.439
30	65.38	0.956	97.91	1.676	11305	201.5	16.380	0.0078	0.951	0.0185	15.581	4.196
35	83.16	0.996	124.20	1.689	12589	241.4	16.355	0.0081	1.294	0.0215	21.170	3.928
40	103.11	0.968	154.17	1.940	13891	269.1	16.325	0.0070	1.704	0.0239	27.813	3.707
45	124.44	1.111	189.02	1.743	15195	373.3	16.285	0.0108	1.941	0.0274	31.606	3.937
50	142.27	1.411	223.46	1.887	16550	503.6	16.237	0.0094	2.015	0.0272	32.724	4.347
55	174.65	1.366	268.73	2.248	18009	647.3	16.184	0.0091	2.117	0.0379	34.254	5.099
60	206.71	1.174	313.01	1.906	19369	387.7	16.119	0.0091	2.404	0.0598	38.750	5.335
65	238.91	1.444	354.68	2.168	20627	403.1	16.045	0.0100	2.979	0.0420	47.806	4.997
70	273.50	1.712	398.11	2.616	21712	471.0	15.962	0.0119	3.918	0.0531	62.536	4.374
75	303.23	1.560	449.14	2.466	22890	449.9	15.869	0.0140	5.134	0.0708	81.464	3.722
80	332.26	1.910	498.70	2.695	24006	636.1	15.772	0.0123	6.832	0.0786	107.763	3.083
90	407.62	2.147	583.59	5.410	26103	371.7	15.605	0.0158	10.955	0.1095	170.951	2.384
100	459.49	5.782	679.31	8.079	27605	269.5	15.410	0.0174	15.082	0.1343	232.416	1.977

Measurement Results 3:

| Output | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff |
[%]	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		[G/W]
20	28.92	0.947	44.63	1.723	7878	58.0	16.230	0.0089	0.383	0.0150	6.210	4.657
25	44.92	0.950	68.68	1.724	9597	77.6	16.211	0.0087	0.629	0.0173	10.195	4.406
30	62.58	1.010	95.94	1.736	11174	198.6	16.192	0.0069	0.935	0.0202	15.144	4.132
35	79.90	0.950	121.79	1.727	12496	243.7	16.169	0.0076	1.276	0.0188	20.636	3.872
40	99.68	0.999	149.81	1.737	13849	241.8	16.137	0.0092	1.668	0.0243	26.924	3.702
45	120.15	1.385	183.92	2.043	15076	314.0	16.100	0.0086	1.925	0.0235	30.988	3.877
50	138.62	1.134	217.32	1.819	16443	470.9	16.057	0.0091	2.003	0.0305	32.161	4.310
55	169.28	1.010	262.24	1.829	17885	641.1	16.000	0.0109	2.114	0.0284	33.829	5.004
60	200.98	1.472	304.34	2.299	19127	383.3	15.929	0.0117	2.374	0.0529	37.809	5.316
65	231.66	1.097	346.75	1.862	20397	477.9	15.856	0.0109	2.950	0.0530	46.775	4.953
70	263.80	1.078	387.99	1.832	21633	488.5	15.766	0.0159	3.893	0.0524	61.375	4.298
75	295.28	1.096	440.59	2.090	22871	464.6	15.665	0.0146	5.108	0.0710	80.013	3.690
80	321.83	1.915	488.61	2.762	23960	433.8	15.551	0.0169	6.706	0.0417	104.284	3.086
90	400.24	3.592	575.50	5.698	26004	456.2	15.357	0.0164	10.867	0.1046	166.887	2.398
100	447.21	3.897	666.95	6.129	27425	316.3	15.165	0.0182	14.877	0.1087	225.619	1.982

Measurement Results 4:

| Output | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff |
[%]	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		[G/W]
20	27.99	0.876	42.64	1.158	7725	60.3	15.929	0.0075	0.375	0.0181	5.975	4.684
25	42.61	0.877	65.29	1.158	9389	110.3	15.910	0.0072	0.607	0.0156	9.659	4.411
30	59.83	0.881	92.35	1.168	10981	169.2	15.887	0.0090	0.904	0.0191	14.357	4.167
35	77.86	0.877	118.64	1.168	12445	207.4	15.865	0.0081	1.251	0.0185	19.855	3.921
40	98.17	0.891	145.32	1.177	13635	201.8	15.836	0.0075	1.648	0.0273	26.095	3.762
45	117.26	1.085	178.10	1.342	14869	299.9	15.794	0.0119	1.928	0.0259	30.444	3.852
50	136.44	0.984	211.12	1.227	16190	481.5	15.747	0.0107	2.019	0.0298	31.793	4.292
55	168.04	1.204	256.40	1.500	17293	495.7	15.691	0.0099	2.142	0.0421	33.616	4.999
60	195.92	1.235	298.25	2.028	18763	407.4	15.628	0.0085	2.428	0.0468	37.941	5.164
65	228.64	1.145	342.01	1.335	20074	212.8	15.558	0.0148	3.000	0.0448	46.668	4.899
70	261.05	1.657	383.07	2.547	21229	184.2	15.483	0.0094	3.970	0.0478	61.471	4.247
75	294.37	1.632	430.77	2.850	22483	449.7	15.396	0.0109	5.155	0.0865	79.368	3.709
80	316.00	3.577	478.89	3.630	23701	335.9	15.312	0.0108	6.715	0.0898	102.816	3.073
90	393.33	3.394	571.18	2.968	25650	316.4	15.150	0.0132	10.800	0.0850	163.615	2.404
100	443.15	5.195	659.83	7.027	27211	365.6	14.969	0.0138	14.734	0.1119	220.565	2.009

Measurement Results 5:

| Output | Thrust [G] | | Torque [G cm] | | RPM [1/min] | | Voltage [V] | | Current [A] | | Pin [W] | ThrustEff |
[%]	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev		[G/W]
20	27.27	0.987	41.29	0.559	7701	77.8	15.780	0.0047	0.365	0.0150	5.759	4.736
25	42.15	1.018	63.98	0.630	9346	80.5	15.766	0.0084	0.598	0.0177	9.431	4.470
30	58.04	0.986	89.35	0.514	10908	115.4	15.742	0.0067	0.891	0.0177	14.027	4.138
35	76.00	0.987	115.04	0.576	12195	226.5	15.719	0.0076	1.225	0.0174	19.256	3.947
40	95.16	1.012	140.70	0.563	13462	216.1	15.692	0.0077	1.611	0.0256	25.273	3.765
45	114.86	1.069	173.87	0.737	14833	296.3	15.650	0.0080	1.922	0.0204	30.073	3.820
50	133.77	1.341	206.12	0.902	16085	406.7	15.606	0.0083	2.019	0.0265	31.502	4.246
55	162.70	1.033	248.75	0.776	17272	502.5	15.550	0.0122	2.154	0.0331	33.498	4.857
60	193.16	1.037	293.27	0.787	18550	427.6	15.485	0.0108	2.453	0.0481	37.980	5.086
65	225.18	1.206	336.98	1.443	19729	420.5	15.418	0.0100	2.978	0.0597	45.919	4.904
70	256.76	1.548	377.81	1.720	21155	99.6	15.344	0.0103	3.958	0.0492	60.739	4.227
75	287.85	1.084	419.94	1.177	22448	382.8	15.266	0.0115	5.217	0.0942	79.652	3.614
80	313.92	2.090	473.47	2.069	23343	553.3	15.175	0.0120	6.714	0.0892	101.893	3.081
90	388.27	3.131	566.32	1.776	25461	335.9	15.022	0.0156	10.751	0.0920	161.498	2.404
100	438.47	3.346	652.02	5.713	27122	272.0	14.846	0.0128	14.636	0.0857	217.286	2.018

Plots for Measurement Results: