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 count:	8
Note:	with duct 5.2

Measurement Results 1:

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	36.19	0.901	43.11	0.289	8233	87.6	16.675	0.0065	0.391	0.0140	6.524	5.547
25	54.59	0.774	68.57	0.268	10014	116.3	16.657	0.0091	0.622	0.0186	10.360	5.269
30	78.09	0.777	91.36	0.381	11772	157.1	16.632	0.0084	0.932	0.0206	15.494	5.040
35	101.89	0.824	121.68	0.569	13238	188.5	16.608	0.0076	1.298	0.0205	21.550	4.728
40	121.84	0.830	145.77	0.749	14480	169.5	16.576	0.0078	1.651	0.0263	27.369	4.452
45	148.23	0.844	174.95	0.907	15979	523.5	16.541	0.0093	1.943	0.0254	32.141	4.612
50	177.38	0.891	214.64	0.795	17415	300.2	16.494	0.0112	2.052	0.0259	33.843	5.241
55	209.49	0.896	254.91	1.193	18673	435.7	16.435	0.0111	2.183	0.0356	35.875	5.839
60	248.30	1.149	287.80	1.215	20116	556.9	16.372	0.0092	2.478	0.0411	40.566	6.121
65	286.57	1.603	338.44	2.536	21542	518.3	16.297	0.0157	3.087	0.0412	50.310	5.696
70	323.12	1.204	380.84	2.177	22909	526.4	16.216	0.0113	3.863	0.0609	62.637	5.159
75	360.33	1.595	432.03	1.998	24258	720.2	16.121	0.0118	5.183	0.0600	83.550	4.313
80	398.91	1.761	471.44	2.419	25330	403.9	16.013	0.0137	6.872	0.0843	110.043	3.625
90	485.15	3.696	571.83	6.384	27755	416.2	15.827	0.0174	10.574	0.1176	167.343	2.899
100	551.97	6.166	651.32	10.546	29308	283.0	15.616	0.0170	14.701	0.1102	229.564	2.404

Measurement Results 2:

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	33.51	0.675	40.23	0.320	8053	81.3	16.433	0.0080	0.364	0.0138	5.986	5.598
25	49.91	0.783	63.79	0.396	9806	90.5	16.415	0.0077	0.589	0.0184	9.670	5.161
30	73.53	0.671	88.28	0.285	11520	124.7	16.397	0.0084	0.888	0.0203	14.564	5.049
35	96.69	0.686	114.25	0.378	13051	173.4	16.370	0.0084	1.228	0.0166	20.110	4.808
40	116.33	0.719	138.05	0.827	14340	196.8	16.343	0.0056	1.588	0.0190	25.954	4.482
45	141.53	0.739	168.36	0.733	15661	359.3	16.309	0.0074	1.901	0.0253	31.006	4.565
50	170.00	0.723	209.68	0.843	17185	447.7	16.262	0.0098	2.011	0.0268	32.705	5.198
55	200.70	0.863	244.69	1.072	18477	501.4	16.210	0.0095	2.169	0.0328	35.166	5.707
60	240.60	0.924	283.17	1.197	19902	553.3	16.147	0.0109	2.435	0.0436	39.317	6.119
65	277.52	1.033	328.73	1.941	21141	116.0	16.076	0.0120	3.027	0.0411	48.656	5.704
70	315.57	1.566	375.90	3.605	22509	562.2	15.996	0.0096	3.807	0.0860	60.905	5.181
75	349.08	0.905	418.49	2.978	23853	731.5	15.907	0.0126	5.019	0.0472	79.835	4.373
80	387.54	2.209	461.57	5.060	25009	327.3	15.812	0.0132	6.693	0.0803	105.830	3.662
90	470.94	4.366	554.41	6.489	27495	513.2	15.638	0.0128	10.398	0.1498	162.608	2.896
100	537.34	3.726	624.21	6.220	29174	213.1	15.450	0.0147	14.391	0.0868	222.338	2.417

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	30.62	2.932	39.52	0.703	7997	61.3	16.249	0.0076	0.365	0.0141	5.932	5.162
25	45.82	2.932	62.01	0.253	9691	145.2	16.232	0.0085	0.582	0.0201	9.453	4.846
30	69.22	2.929	85.99	0.409	11432	154.2	16.211	0.0080	0.875	0.0221	14.193	4.877
35	93.10	2.936	112.09	0.425	12919	102.1	16.185	0.0063	1.226	0.0202	19.840	4.693
40	111.70	2.935	134.72	0.508	14165	192.3	16.160	0.0069	1.575	0.0268	25.457	4.388
45	136.76	2.929	163.56	0.452	15591	364.2	16.123	0.0114	1.899	0.0234	30.616	4.467
50	164.11	3.084	206.95	1.736	16924	407.9	16.077	0.0091	2.030	0.0329	32.630	5.029
55	195.69	2.946	238.83	0.712	18373	261.9	16.032	0.0116	2.189	0.0335	35.093	5.577
60	232.76	3.126	275.21	2.962	19870	645.2	15.968	0.0120	2.448	0.0425	39.097	5.953
65	269.06	3.025	316.00	2.533	21123	144.9	15.893	0.0116	3.043	0.0450	48.358	5.564
70	307.03	2.952	365.11	1.733	22169	350.2	15.814	0.0144	3.827	0.0877	60.514	5.074
75	343.45	3.649	415.20	6.535	23778	420.4	15.714	0.0127	5.001	0.0677	78.581	4.371
80	380.19	3.309	457.92	3.358	24730	479.3	15.607	0.0152	6.664	0.1119	104.008	3.655
90	462.76	4.596	550.33	5.261	27129	487.2	15.413	0.0196	10.413	0.1315	160.498	2.883
100	528.98	4.470	621.47	4.301	28903	210.6	15.206	0.0203	14.191	0.0839	215.796	2.451

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	29.35	2.921	38.41	0.284	7849	53.2	15.975	0.0064	0.351	0.0140	5.601	5.240
25	42.63	2.934	59.28	0.344	9615	101.6	15.959	0.0054	0.564	0.0158	8.999	4.737
30	65.16	2.920	83.22	0.444	11214	143.7	15.937	0.0097	0.835	0.0184	13.309	4.896
35	89.24	2.922	107.10	0.462	12750	171.6	15.912	0.0059	1.185	0.0199	18.860	4.732
40	107.78	2.922	129.33	0.464	13928	264.4	15.882	0.0087	1.530	0.0243	24.295	4.436
45	131.86	2.919	156.55	0.368	15373	294.5	15.848	0.0085	1.866	0.0239	29.564	4.460
50	154.62	2.933	195.48	1.534	16561	333.7	15.797	0.0108	2.022	0.0299	31.933	4.842
55	190.29	2.965	234.01	2.317	17977	428.7	15.748	0.0135	2.178	0.0398	34.295	5.549
60	223.90	3.056	264.57	2.863	19339	466.6	15.682	0.0131	2.437	0.0402	38.218	5.858
65	261.29	3.053	305.29	2.071	20714	419.4	15.609	0.0095	3.029	0.0390	47.283	5.526
70	297.81	2.933	355.12	1.296	21944	469.5	15.533	0.0142	3.815	0.0550	59.261	5.025
75	331.74	3.061	401.23	1.369	23229	494.6	15.448	0.0084	4.983	0.0777	76.971	4.310
80	367.93	3.161	444.01	3.148	24540	491.3	15.365	0.0130	6.601	0.0615	101.425	3.628
90	450.88	5.025	541.92	8.498	26942	428.1	15.201	0.0156	10.284	0.1219	156.331	2.884
100	517.50	4.413	609.80	3.342	28672	253.2	15.029	0.0140	13.956	0.0870	209.739	2.467

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	30.80	0.177	38.76	0.217	7794	68.8	15.817	0.0063	0.351	0.0128	5.556	5.544
25	43.80	0.513	59.56	0.242	9501	109.1	15.804	0.0072	0.559	0.0141	8.834	4.958
30	65.69	0.174	84.56	0.310	11082	148.6	15.782	0.0067	0.841	0.0222	13.270	4.950
35	89.79	0.299	106.18	0.609	12620	199.4	15.756	0.0097	1.176	0.0185	18.522	4.848
40	108.22	0.231	129.11	0.801	13986	232.5	15.729	0.0101	1.519	0.0266	23.898	4.528
45	132.49	0.351	154.48	0.611	15159	379.7	15.694	0.0092	1.866	0.0262	29.286	4.524
50	153.67	0.430	190.56	0.994	16546	484.5	15.653	0.0092	2.010	0.0258	31.469	4.883
55	189.24	0.374	230.45	0.938	17746	399.6	15.601	0.0080	2.199	0.0315	34.310	5.516
60	222.65	0.986	260.71	2.649	19391	475.7	15.540	0.0111	2.469	0.0466	38.364	5.804
65	258.43	0.383	299.96	2.335	20513	476.5	15.470	0.0126	3.025	0.0348	46.800	5.522
70	294.32	1.222	347.44	2.185	21913	526.8	15.397	0.0106	3.856	0.0462	59.366	4.958
75	329.39	1.170	396.29	2.422	23182	422.5	15.318	0.0114	5.001	0.0705	76.596	4.300
80	364.92	1.008	439.56	1.109	24522	450.8	15.231	0.0176	6.579	0.0547	100.207	3.642
90	448.43	2.928	534.24	4.920	26798	301.1	15.073	0.0157	10.295	0.1101	155.170	2.890
100	516.52	3.403	611.35	3.907	28583	216.6	14.896	0.0136	13.863	0.0770	206.498	2.501

Plots for Measurement Results: