Tool info

Serial API:	1:1.0
Board:	Custom STM32F401RE thrustBoard v2
Firmware:	thrust++ : ChibiOS RT 7.1.0 : HAL 8.1.0
Commit:	[7ea798b] : Apr 25 2022 - 18:19:20

Measurement info

Motor:	T-Motor MN2206-13
KV:	200
Magnet poles:	14
Propeler:	HQProp 6x4x3
Blade count:	2
Note:	

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	39.86	2.684	77.41	2.110	4139	15.8	12.541	0.0075	0.334	0.0140	4.185	9.525
25	63.82	2.682	113.59	2.094	5088	29.7	12.532	0.0067	0.570	0.0244	7.149	8.927
30	91.55	2.682	155.40	2.091	5992	31.8	12.521	0.0086	0.881	0.0217	11.037	8.295
35	122.67	2.702	201.91	2.111	6844	68.8	12.505	0.0086	1.295	0.0262	16.194	7.575
40	155.74	2.750	252.96	2.178	7702	74.8	12.483	0.0093	1.777	0.0393	22.177	7.022
45	191.01	2.692	303.42	2.159	8408	108.7	12.462	0.0073	2.146	0.0299	26.745	7.142
50	227.26	2.706	356.67	2.131	9138	80.3	12.434	0.0100	2.368	0.0307	29.441	7.719
55	266.89	2.702	413.74	2.159	9927	179.6	12.400	0.0085	2.644	0.0458	32.784	8.141
60	307.65	2.727	477.28	2.190	10647	158.8	12.362	0.0108	3.071	0.0601	37.959	8.105
65	353.28	2.788	544.08	2.494	11435	139.4	12.315	0.0075	3.577	0.0687	44.046	8.021
70	398.90	2.773	606.56	2.260	12126	211.5	12.267	0.0092	4.501	0.0911	55.213	7.225
75	446.61	3.265	675.79	2.617	12792	195.7	12.212	0.0080	5.659	0.1496	69.101	6.463
80	491.71	4.107	745.28	3.508	13412	120.5	12.149	0.0106	7.033	0.1654	85.448	5.754
90	596.19	3.393	893.20	3.114	14702	310.9	12.030	0.0115	10.738	0.1240	129.183	4.615
100	692.20	4.992	1025.39	5.944	15786	148.7	11.894	0.0102	14.509	0.0829	172.565	4.011

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	37.96	2.219	75.58	2.372	4101	15.1	12.407	0.0077	0.326	0.0144	4.049	9.376
25	60.98	2.222	110.72	2.413	5043	36.2	12.401	0.0084	0.554	0.0205	6.873	8.872
30	87.93	2.221	151.38	2.382	5907	29.1	12.389	0.0071	0.860	0.0214	10.658	8.250
35	117.78	2.229	196.96	2.383	6759	65.4	12.371	0.0088	1.247	0.0377	15.428	7.634
40	149.35	2.240	245.01	2.429	7576	54.5	12.352	0.0082	1.737	0.0358	21.460	6.959
45	182.46	2.229	294.19	2.537	8331	71.6	12.330	0.0084	2.056	0.0314	25.357	7.196
50	218.10	2.290	345.86	2.410	9065	94.5	12.302	0.0078	2.249	0.0265	27.665	7.884
55	258.02	2.249	405.05	2.399	9798	113.7	12.269	0.0064	2.532	0.0465	31.059	8.307
60	296.14	2.345	466.87	2.714	10517	136.4	12.233	0.0098	2.927	0.0473	35.806	8.271
65	340.17	2.254	531.26	2.599	11244	211.9	12.184	0.0086	3.417	0.0948	41.634	8.171
70	387.77	2.385	599.77	2.619	11925	216.6	12.136	0.0076	4.294	0.1110	52.112	7.441
75	435.01	2.436	666.70	2.871	12597	202.3	12.084	0.0078	5.425	0.0935	65.553	6.636
80	483.27	2.466	736.98	3.088	13290	176.5	12.020	0.0078	6.906	0.1435	83.011	5.822
90	584.14	3.873	880.81	4.708	14598	300.5	11.905	0.0102	10.634	0.1070	126.591	4.614
100	678.52	4.121	1011.97	5.038	15675	142.6	11.782	0.0118	14.409	0.1019	169.769	3.997

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	39.47	3.889	74.81	2.325	4069	22.7	12.285	0.0051	0.323	0.0149	3.974	9.933
25	62.23	3.890	109.69	2.311	4994	32.7	12.277	0.0090	0.550	0.0200	6.747	9.223
30	89.00	3.894	149.90	2.332	5875	45.9	12.267	0.0063	0.850	0.0202	10.432	8.531
35	117.84	3.898	194.26	2.352	6693	46.6	12.251	0.0049	1.241	0.0271	15.205	7.750
40	148.86	3.900	240.49	2.434	7521	67.7	12.232	0.0055	1.712	0.0343	20.941	7.109
45	181.93	3.938	289.39	2.392	8236	83.4	12.208	0.0089	2.063	0.0276	25.181	7.225
50	216.75	3.935	340.96	2.371	8995	95.9	12.182	0.0061	2.288	0.0327	27.869	7.778
55	253.46	3.938	397.10	2.420	9743	129.4	12.148	0.0079	2.552	0.0377	30.997	8.177
60	292.26	3.901	457.13	2.332	10474	156.3	12.111	0.0080	2.974	0.0497	36.023	8.113
65	337.64	3.966	523.46	2.534	11150	120.1	12.067	0.0049	3.468	0.1280	41.852	8.067
70	383.57	3.929	588.48	2.395	11817	150.9	12.018	0.0066	4.329	0.0672	52.028	7.372
75	428.93	4.038	654.52	2.526	12591	103.2	11.966	0.0073	5.499	0.1115	65.804	6.518
80	477.51	4.223	726.44	2.980	13179	229.6	11.905	0.0062	6.946	0.1455	82.695	5.774
90	579.45	4.677	870.98	3.703	14500	196.3	11.798	0.0089	10.532	0.1130	124.252	4.663
100	674.71	4.471	1001.02	4.028	15570	112.5	11.670	0.0102	14.382	0.0556	167.846	4.020

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	36.17	5.209	72.72	3.320	4034	21.1	12.184	0.0071	0.313	0.0144	3.819	9.471
25	59.06	5.206	107.14	3.336	4967	30.5	12.175	0.0080	0.538	0.0189	6.552	9.014
30	84.25	5.200	145.99	3.312	5841	35.2	12.167	0.0073	0.823	0.0184	10.014	8.413
35	112.39	5.210	189.43	3.347	6678	54.3	12.151	0.0063	1.216	0.0271	14.782	7.603
40	142.91	5.218	235.94	3.383	7461	48.9	12.132	0.0051	1.667	0.0410	20.226	7.066
45	176.09	5.213	284.44	3.357	8200	61.2	12.108	0.0088	2.058	0.0274	24.919	7.067
50	210.02	5.214	334.40	3.354	8916	93.6	12.084	0.0094	2.284	0.0341	27.602	7.609
55	248.60	5.228	392.32	3.404	9645	149.8	12.051	0.0081	2.537	0.0463	30.579	8.130
60	285.68	5.214	450.15	3.359	10335	116.9	12.013	0.0067	2.972	0.0561	35.701	8.002
65	331.34	5.298	516.45	3.538	11167	73.3	11.971	0.0101	3.575	0.1116	42.794	7.743
70	377.24	5.248	582.28	3.409	11790	154.9	11.919	0.0061	4.291	0.0827	51.138	7.377
75	422.34	5.263	646.30	3.435	12394	196.5	11.867	0.0103	5.465	0.1358	64.852	6.512
80	469.08	5.742	715.71	4.521	13173	207.0	11.804	0.0095	6.956	0.0889	82.111	5.713
90	566.90	5.575	856.00	4.242	14456	116.6	11.691	0.0129	10.469	0.1066	122.398	4.632
100	659.59	6.150	984.77	5.034	15453	90.3	11.558	0.0131	14.273	0.0430	164.969	3.998

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	32.19	2.110	71.30	3.998	3986	15.8	12.058	0.0074	0.305	0.0141	3.681	8.744
25	54.06	2.109	105.05	3.993	4923	38.1	12.049	0.0068	0.526	0.0221	6.343	8.522
30	79.91	2.114	144.33	3.998	5790	38.3	12.038	0.0076	0.811	0.0246	9.762	8.186
35	108.14	2.120	187.39	4.008	6608	45.3	12.020	0.0071	1.197	0.0277	14.383	7.519
40	138.43	2.147	233.18	4.057	7383	51.8	12.001	0.0078	1.643	0.0406	19.715	7.022
45	170.61	2.132	281.35	4.065	8109	97.5	11.978	0.0037	2.060	0.0222	24.677	6.914
50	204.14	2.242	330.05	4.156	8877	101.6	11.949	0.0068	2.309	0.0330	27.589	7.399
55	240.73	2.202	385.19	4.077	9578	73.0	11.914	0.0080	2.604	0.0450	31.028	7.759
60	277.54	2.245	443.10	4.074	10271	135.1	11.876	0.0080	3.009	0.0596	35.739	7.766
65	320.90	2.189	506.24	4.057	11019	226.2	11.831	0.0082	3.595	0.0788	42.533	7.545
70	366.76	2.308	572.79	4.076	11727	252.1	11.780	0.0103	4.376	0.0573	51.556	7.114
75	410.34	2.162	635.45	4.048	12335	220.5	11.727	0.0083	5.546	0.0795	65.045	6.309
80	458.41	2.565	704.53	4.736	13005	126.1	11.668	0.0090	6.916	0.1258	80.695	5.681
90	556.46	4.622	843.23	6.047	14271	143.7	11.560	0.0085	10.413	0.0900	120.374	4.623
100	646.71	3.138	974.59	5.534	15376	139.9	11.439	0.0098	14.185	0.0522	162.267	3.985

Plots for Measurement Results: