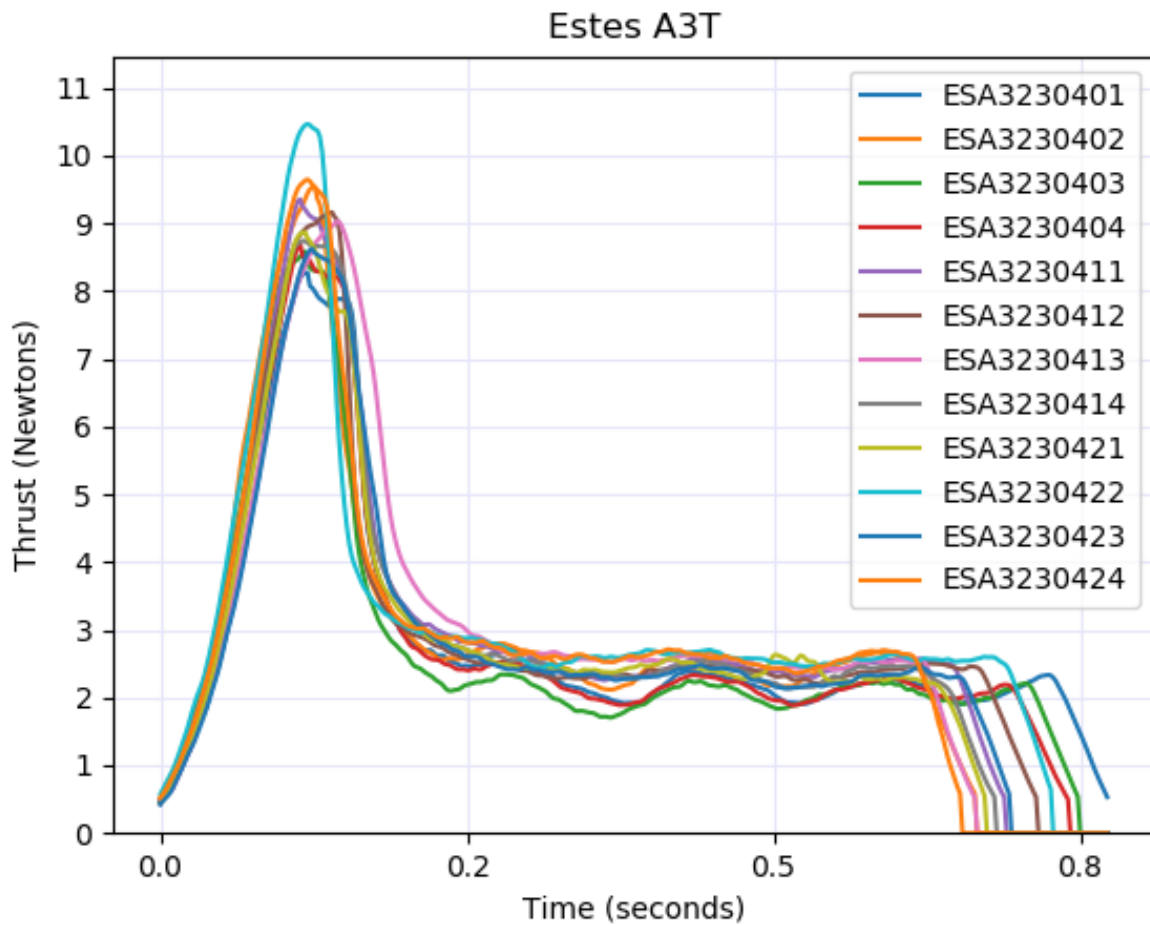


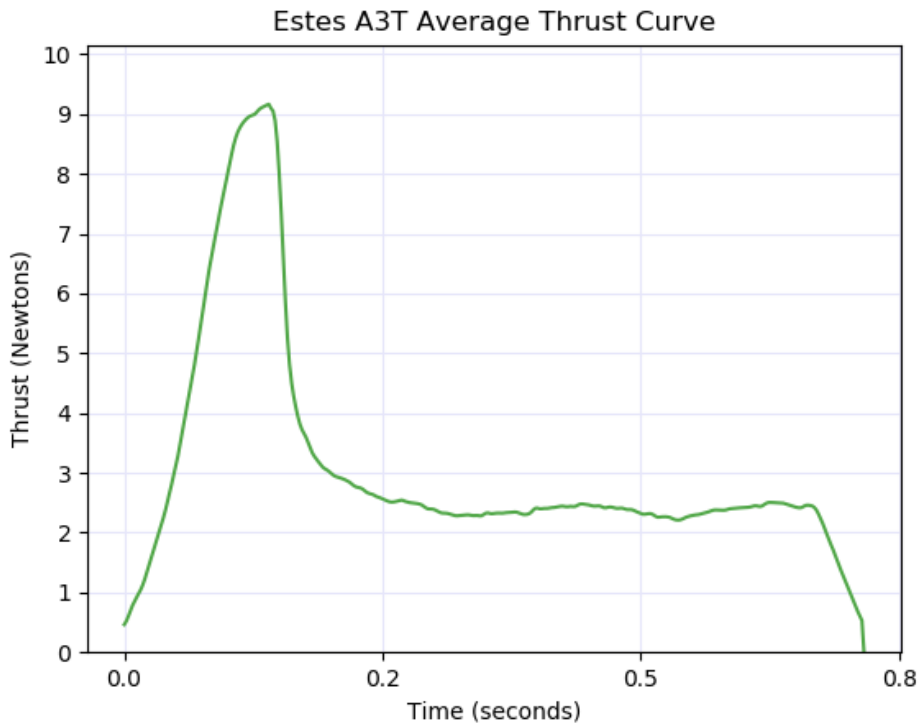
## Estes A3T Test Results

Manufacturer	Estes
Motor Designation	A3T
Date Tested	2023-04-16
Average Total Impulse	2.18
Average Max Thrust	9.08
Average Burn Time	0.70
Average Thrust	3.12
Result	Measured values are within NFPA tolerances



Test ID	Delay	I-Total	f-Max	f-Avg	t-Burn	t-Delay	m-Init	m-Post	Lot ID
ESA3230401	2	2.19	8.28	2.83	0.77	2.45	6.00	2.00	G22 0922
ESA3230402	2	2.13	9.54	3.20	0.67	2.10	6.00	2.00	G22 0922
ESA3230403	2	2.07	8.58	2.76	0.75	1.72	6.00	2.00	G22 0922
ESA3230404	2	2.14	8.70	2.88	0.74	1.68	6.00	2.00	G22 0922
ESA3230411	4	2.25	9.35	3.26	0.69	2.87	6.00	4.00	G22 1022
ESA3230412	4	2.21	9.16	3.09	0.72	3.63	8.00	2.00	G22 1022
ESA3230413	4	2.24	9.03	3.37	0.67	3.43	8.00	2.00	G22 1022
ESA3230414	4	2.17	8.74	3.18	0.68	3.45	6.00	2.00	G22 1022
ESA3230421	6	2.12	8.87	3.14	0.67	5.30	6.00	2.00	G22 0922
ESA3230422	6	2.39	10.47	3.28	0.73	4.93	6.00	2.00	G22 0922
ESA3230423	6	2.12	8.62	3.06	0.69	5.17	6.00	2.00	G22 0922
ESA3230424	6	2.19	9.65	3.34	0.65	5.38	8.00	2.00	G22 0922
Average		2.18	9.08	3.12	0.70				
$\sigma$		0.08	0.57	0.19	0.04				
$\% \sigma$		3.65	6.32	6.18	5.23				

Delay	Average	$\sigma$	$\% \sigma$
2	1.99	0.31	15.77
4	3.35	0.28	8.52
6	5.19	0.17	3.23



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; Estes A3T RASP .ENG file
; File produced April 26, 2023 by NAR Standards & Testing
;
; Motor Diameter Length Delays Propellant_Mass(kg) Initial_Mass(kg) Manufacturer
A3T 13 43 2-4-6 0.0033 0.0065 Estes
0.000 0.462
0.020 1.228
0.046 2.820
0.066 4.610
0.084 6.577
0.106 8.486
0.116 8.876
0.140 9.163
0.148 8.548
0.158 5.254
0.162 4.505
0.170 3.817
0.182 3.334
0.192 3.097
0.204 2.943
0.256 2.520
0.270 2.537
0.322 2.281
0.378 2.344
0.388 2.302
0.398 2.408
0.442 2.480
0.490 2.387
0.536 2.209
0.570 2.374
0.616 2.437
0.624 2.504
0.654 2.415
0.666 2.444
0.674 2.236
0.712 0.604
0.716 0.000
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