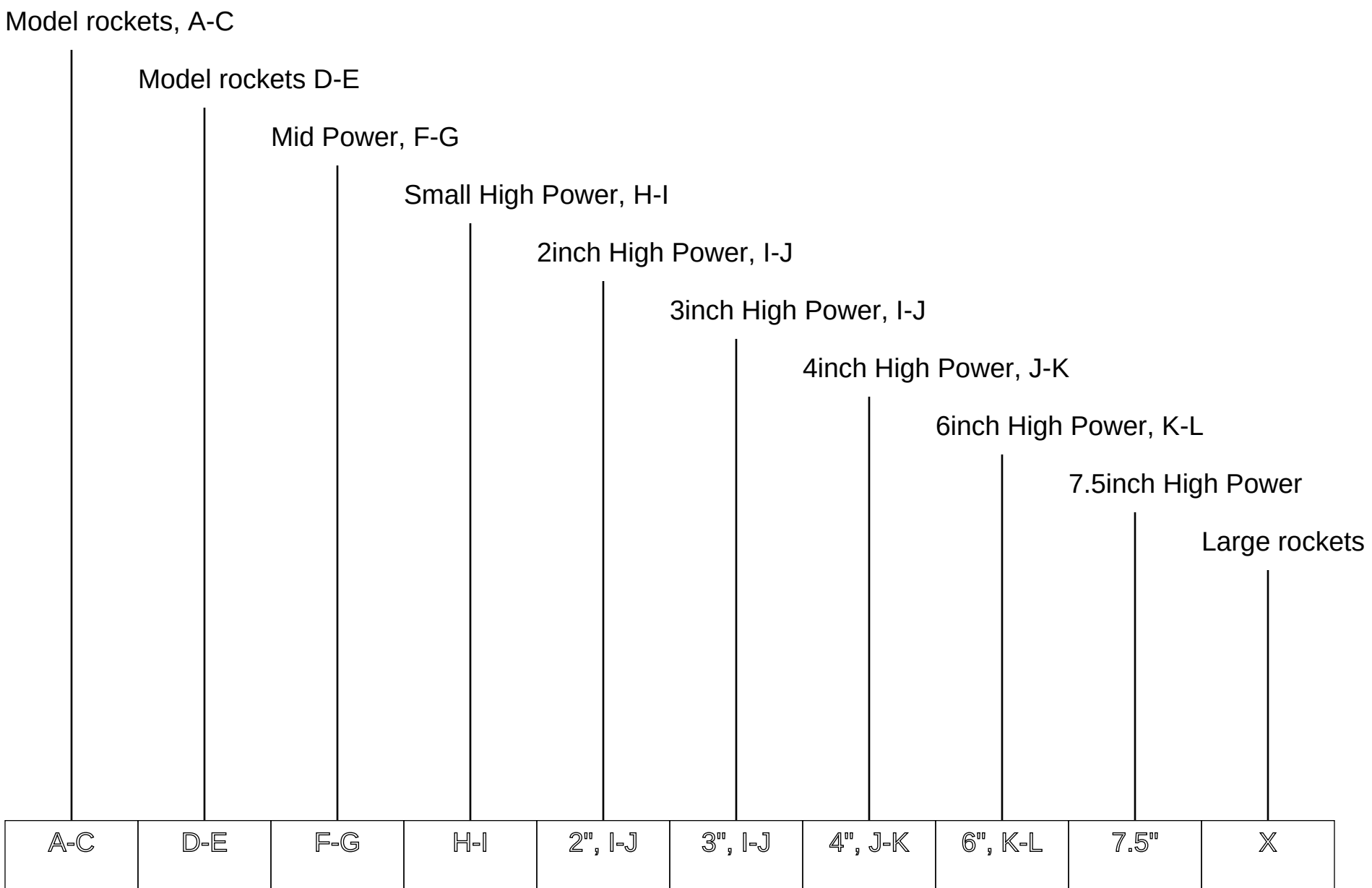
Rocket Trajectory Nomograms


Model rockets, A-C
Model rockets D-E
Mid Power, F-G
Small High Power, H-I
2inch High Power, I-J
3inch High Power, I-J
4inch High Power, J-K
6inch High Power, K-L
7.5inch High Power
Large rockets
A-C
D-E
F-G
H-I
2", I-J
3", I-J
4", J-K
6", K-L
7.5"
X

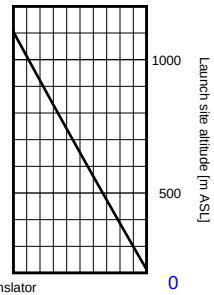
Estes
A8

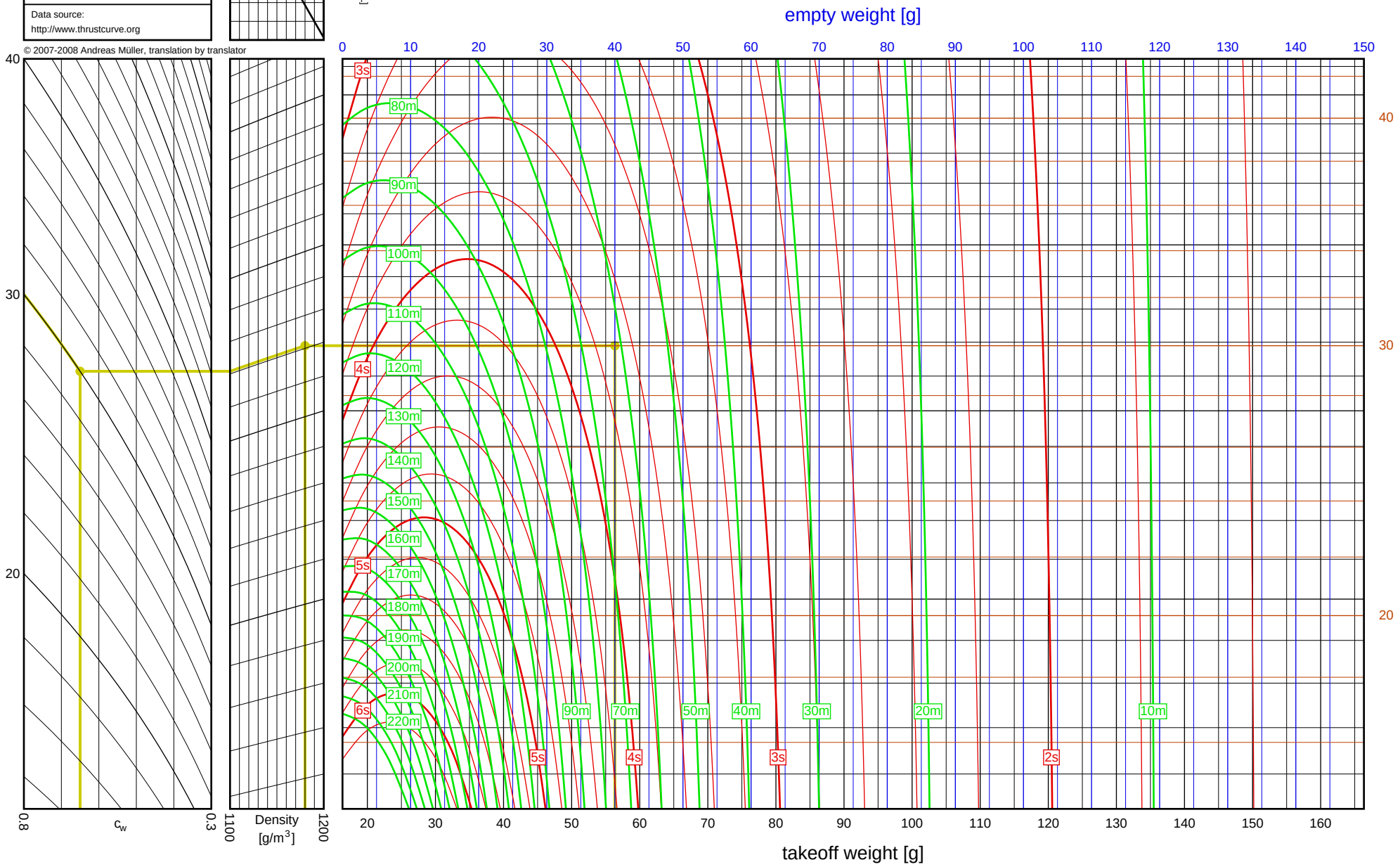
I_{tot}	=	2.3 Ns
F_{avg}	=	3.2 N
t_{burn}	=	0.73 s
d	=	18 mm

Data source:
http://www.thrustcurve.org

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.056kg
Results: time to apogee: 3.7s, expected altitude: 62m

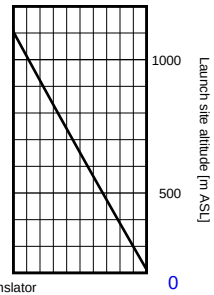




Estes B4

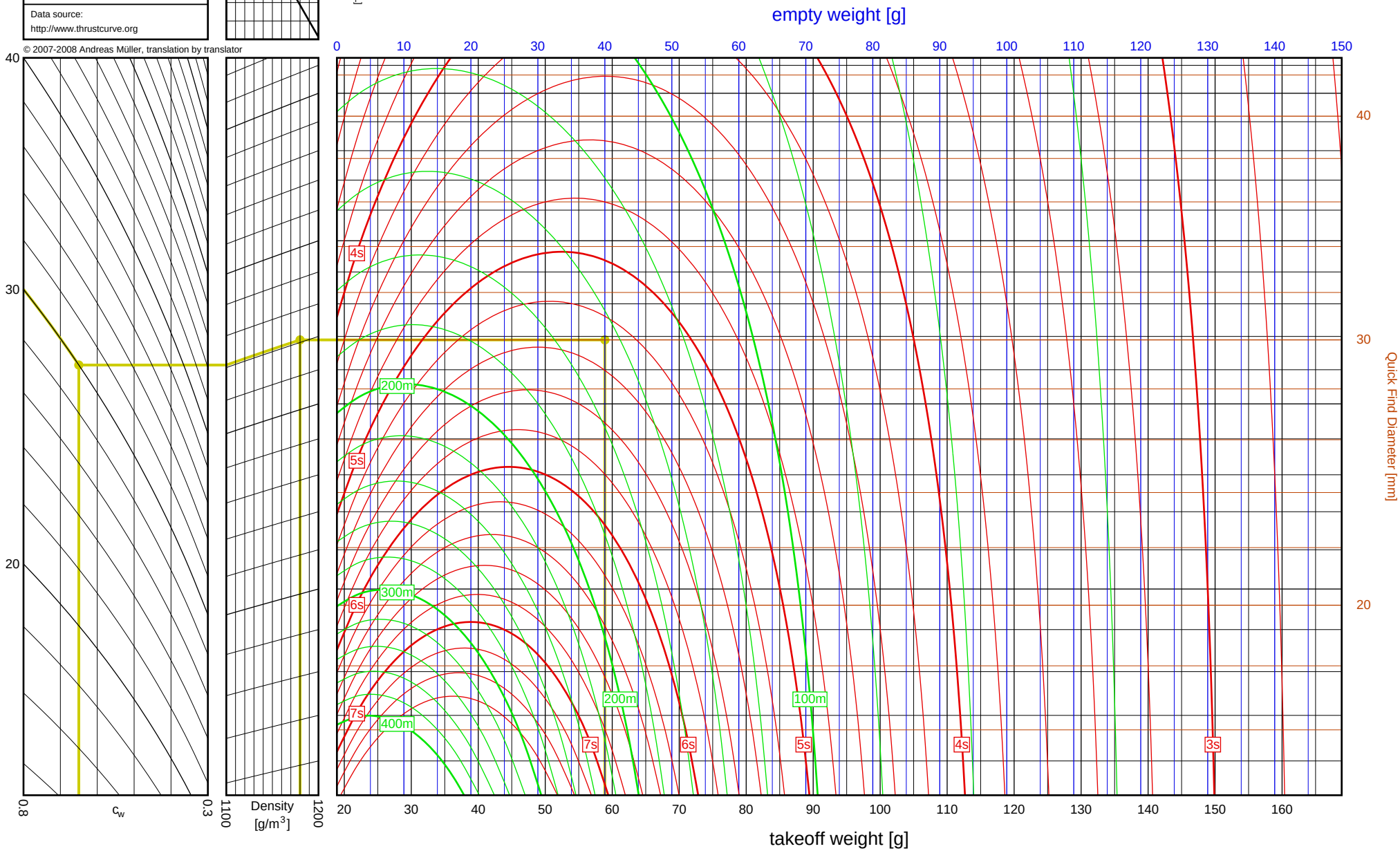
I_{tot}	=	4.3 Ns
F_{avg}	=	4.2 N
t_{burn}	=	1.03 s
d	=	18 mm

Data source:
http://www.thrustcurve.org



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

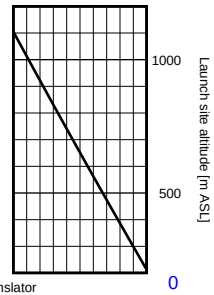
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.059kg
Results: time to apogee: 5.3s, expected altitude: 145m



Estes C6

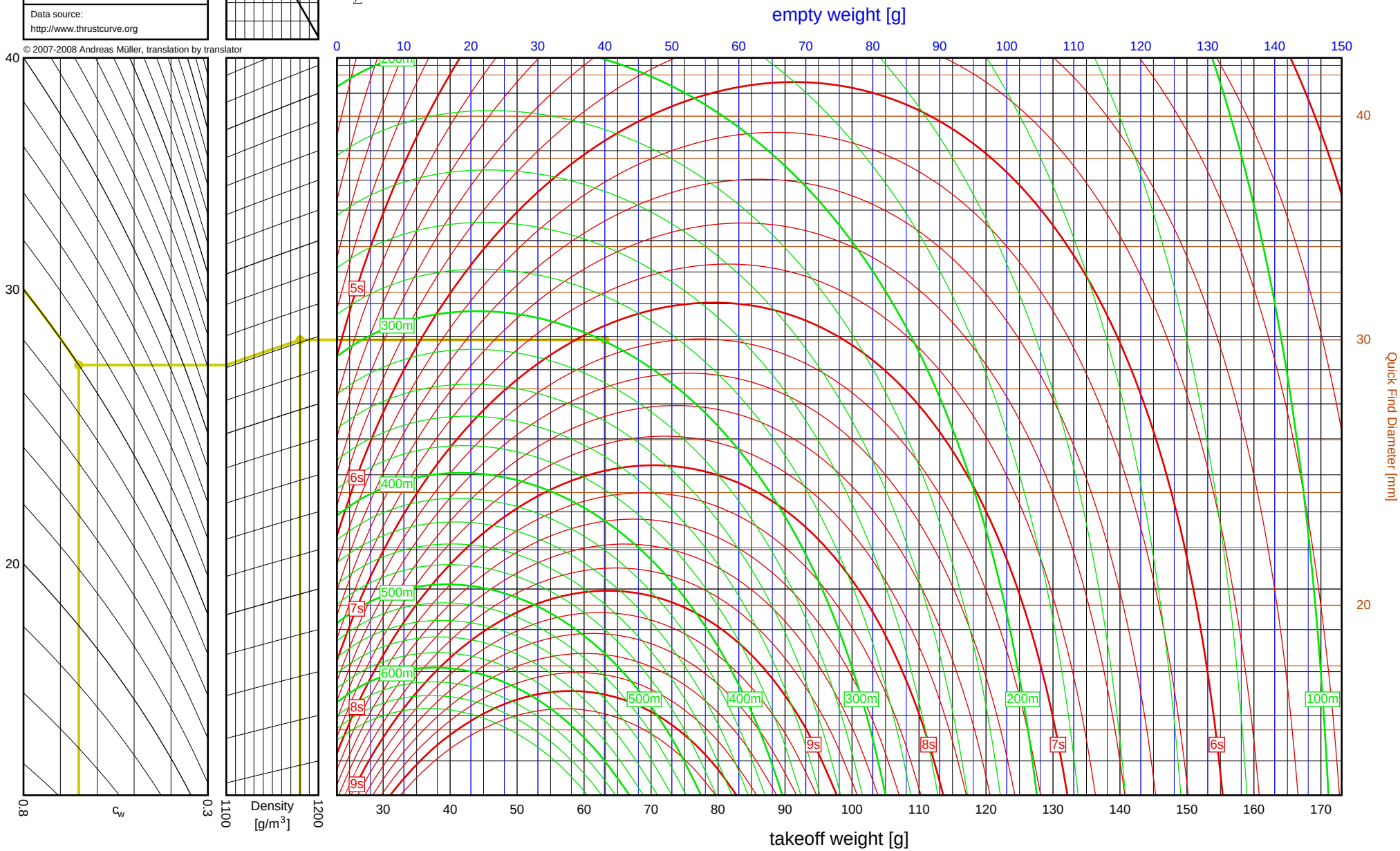
I_{tot}	=	8.8 Ns
F_{avg}	=	4.7 N
t_{burn}	=	1.86 s
d	=	18 mm

Data source:
http://www.thrustcurve.org



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

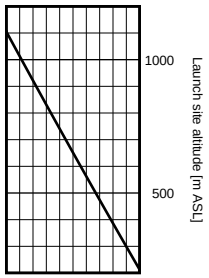
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.063kg
Results: time to apogee: 7.1s, expected altitude: 300m



Estes D12

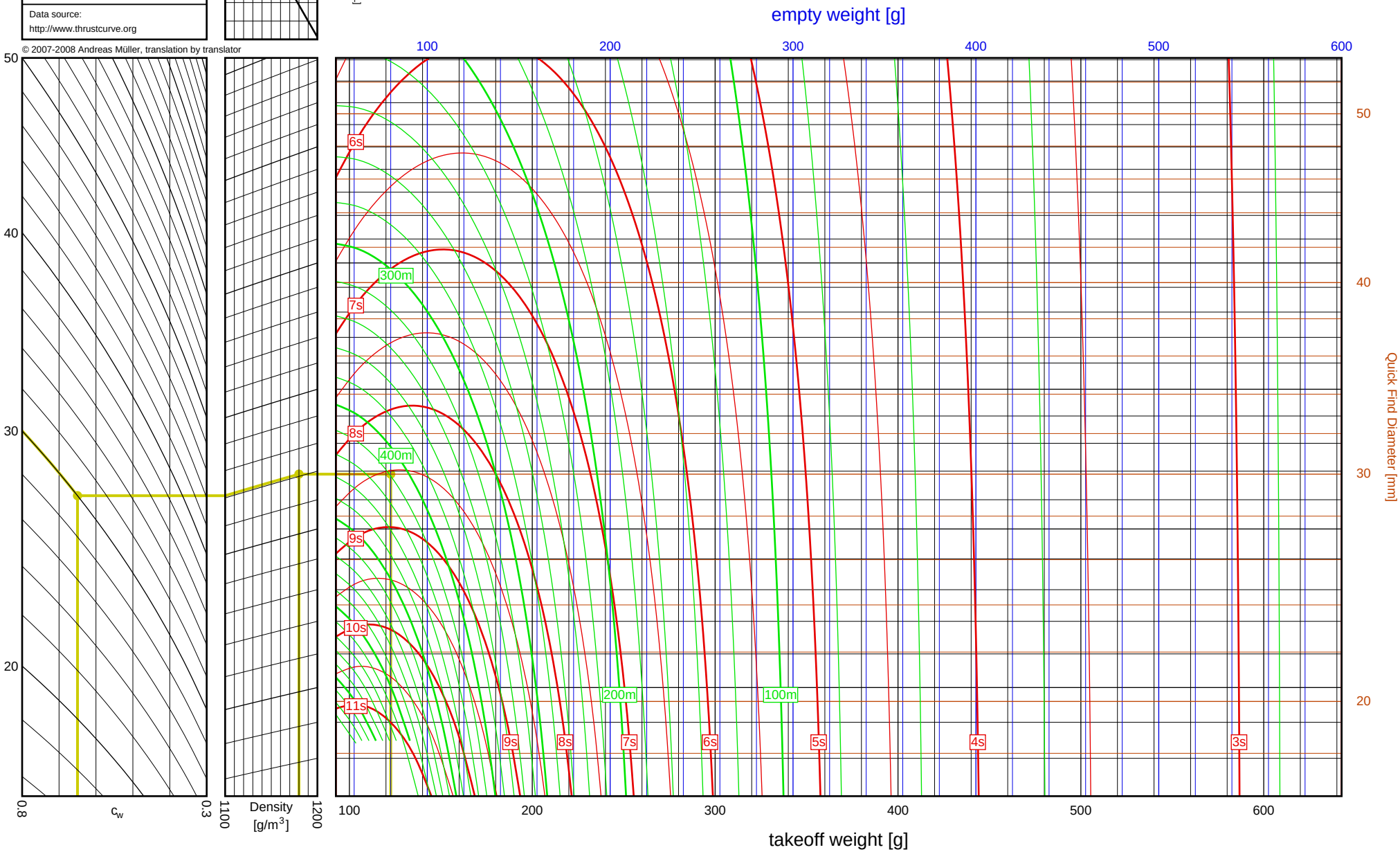
I_{tot}	=	16.8 Ns
F_{avg}	=	10.2 N
t_{burn}	=	1.65 s
d	=	24 mm

Data source:
http://www.thrustcurve.org



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

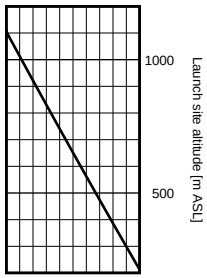
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.123kg
Results: time to apogee: 8.5s, expected altitude: 419m



Aerotech D24T

I_{tot}	=	18.0 Ns
F_{avg}	=	14.8 N
t_{burn}	=	1.22 s
d	=	18 mm

Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.111kg

Results: time to apogee: 8.3s, expected altitude: 442m

empty weight [g]

takeoff weight [g]

Diameter [mm]

Quick Find Diameter [mm]

c_w

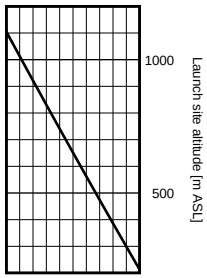
Density [g/m^3]

Aerotech

D7-RC

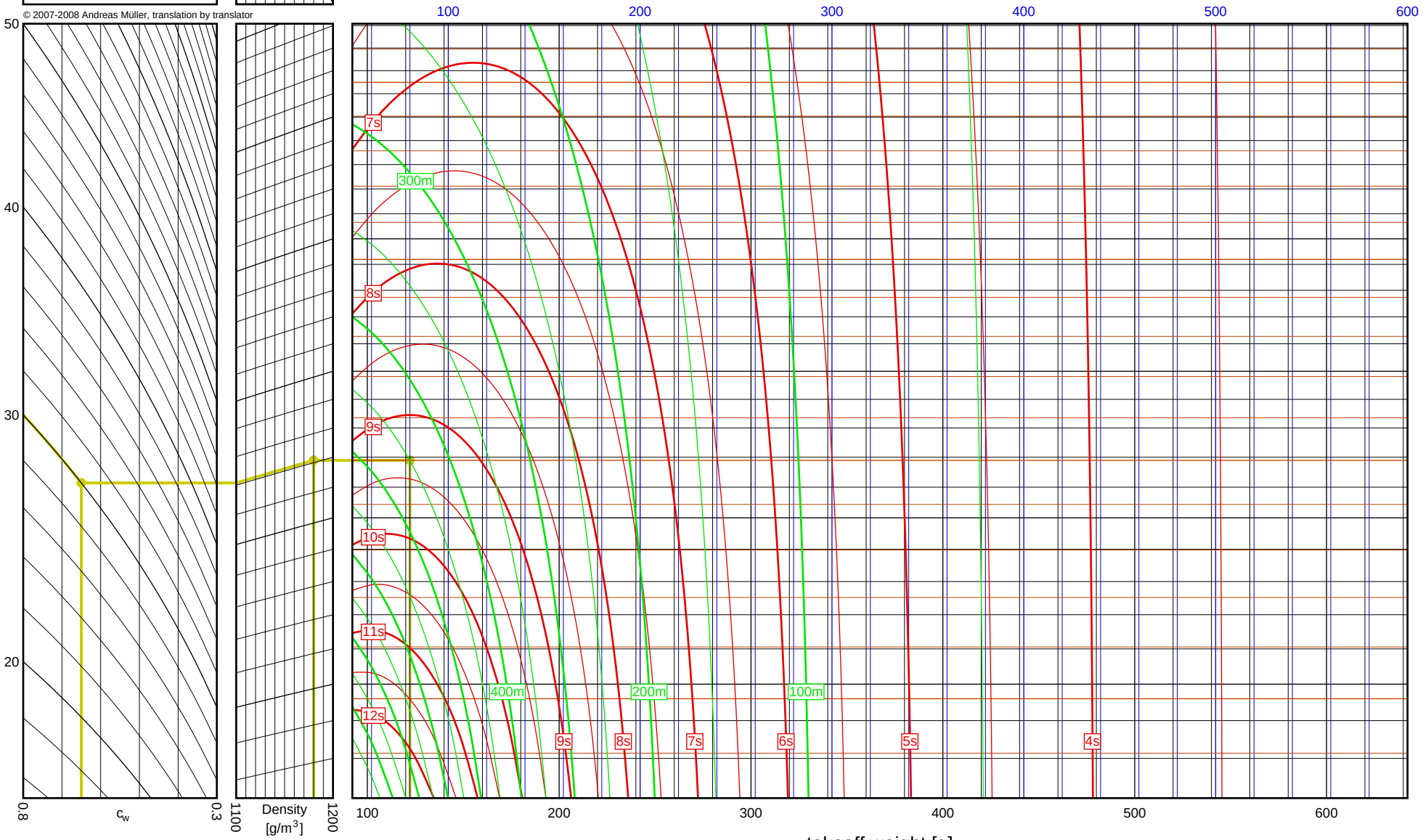
I_{tot}	=	18.5 Ns
F_{avg}	=	6.5 N
t_{burn}	=	2.87 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

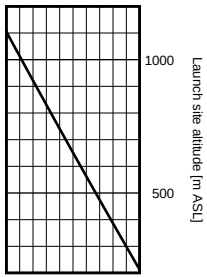
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.122kg
Results: time to apogee: 9.4s, expected altitude: 450m



Aerotech D9W

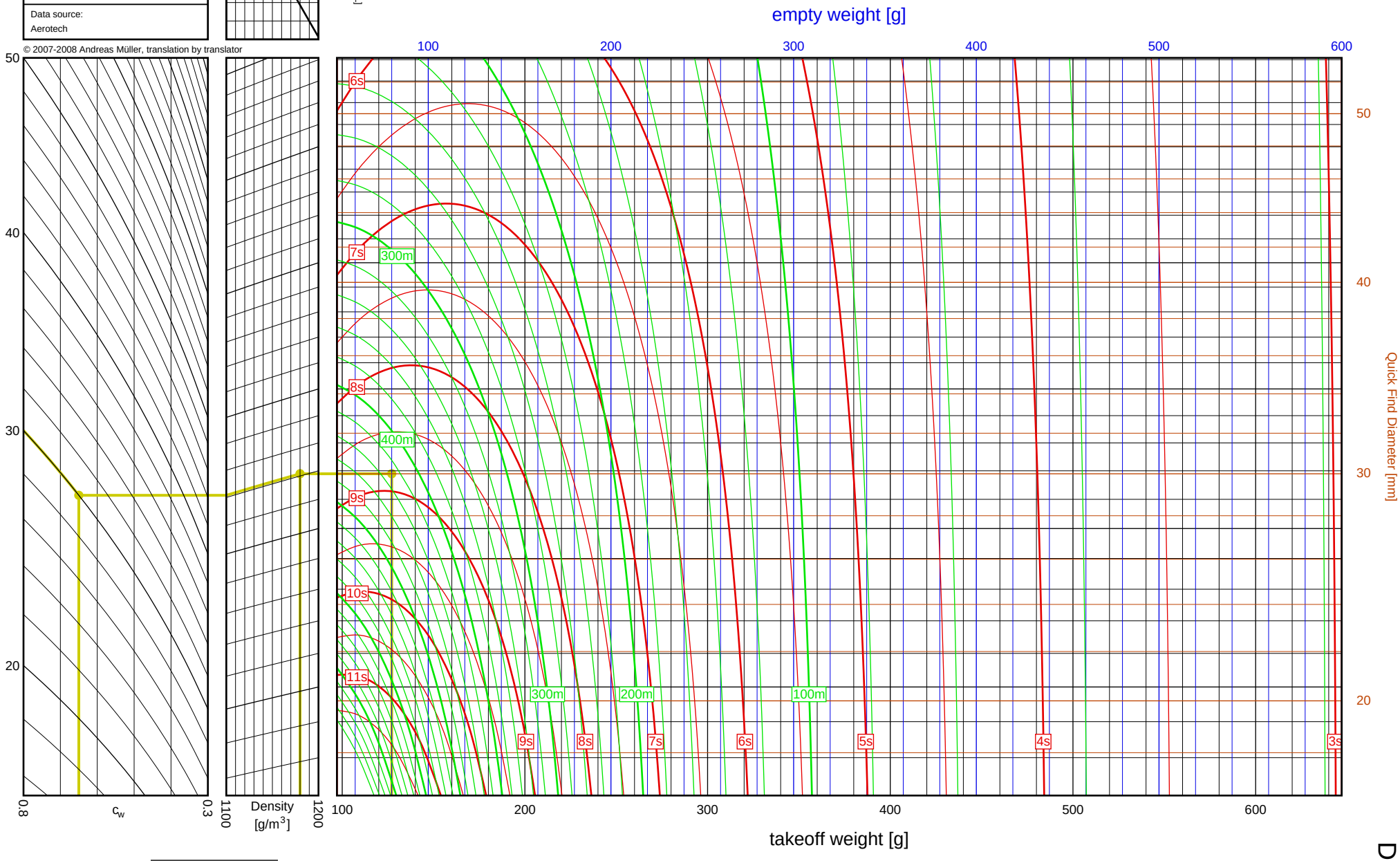
I_{tot}	=	18.8 Ns
F_{avg}	=	10.0 N
t_{burn}	=	1.88 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

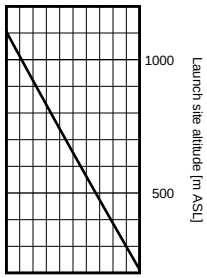
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.127kg
Results: time to apogee: 8.9s, expected altitude: 429m



Aerotech D13W

I_{tot}	=	19.2 Ns
F_{avg}	=	11.3 N
t_{burn}	=	1.70 s
d	=	18 mm

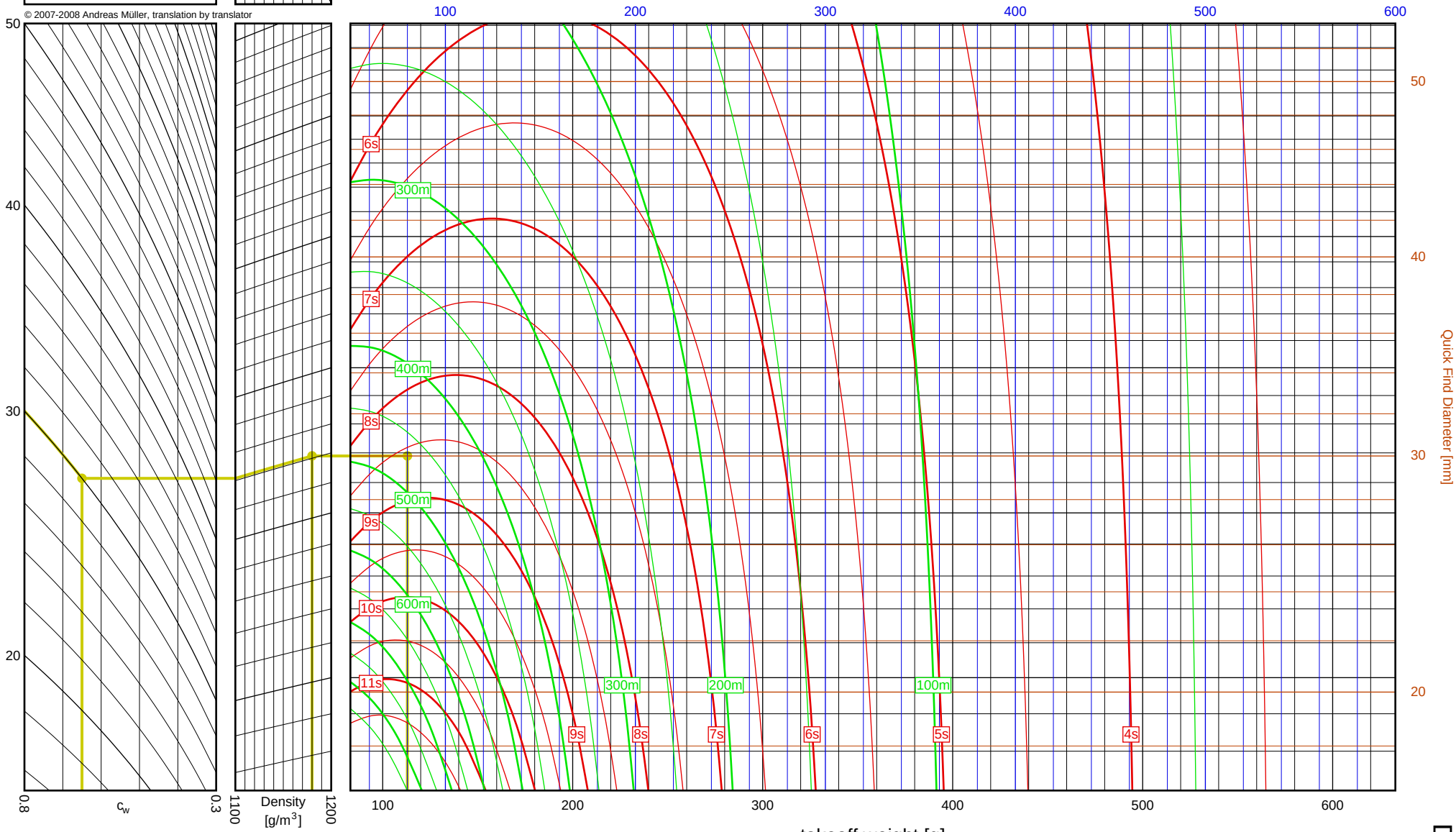
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.113kg
Results: time to apogee: 8.6s, expected altitude: 469m

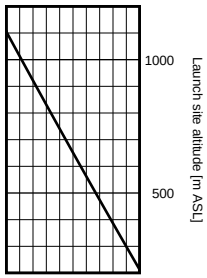
empty weight [g]



Aerotech D21T

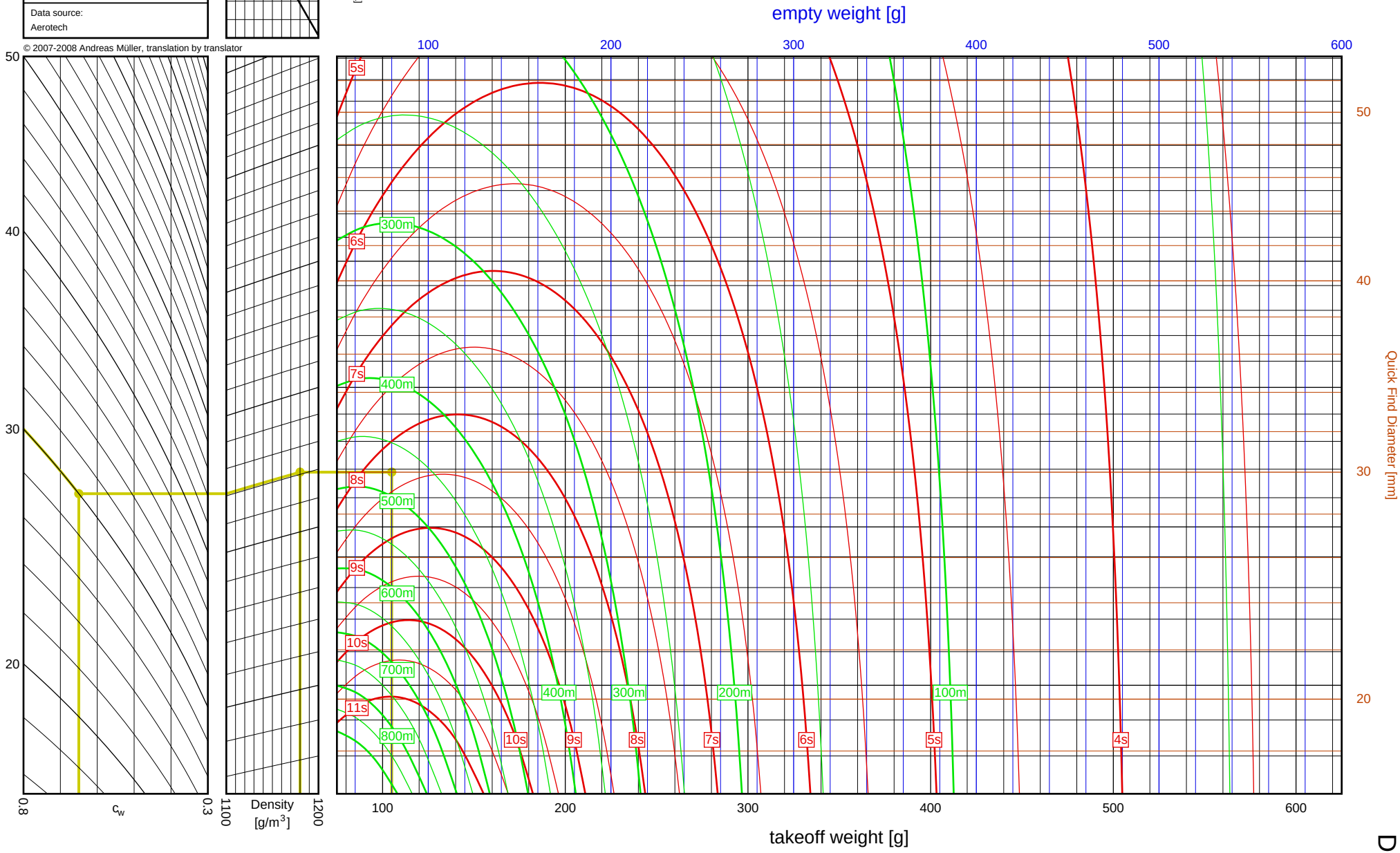
I_{tot}	=	19.6 Ns
F_{avg}	=	20.8 N
t_{burn}	=	0.94 s
d	=	18 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.105kg
Results: time to apogee: 8.3s, expected altitude: 477m

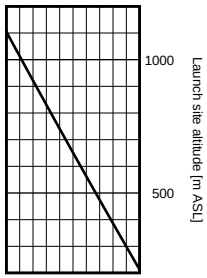


Aerotech

D15T

I_{tot}	=	19.6 Ns
F_{avg}	=	14.0 N
t_{burn}	=	1.40 s
d	=	24 mm

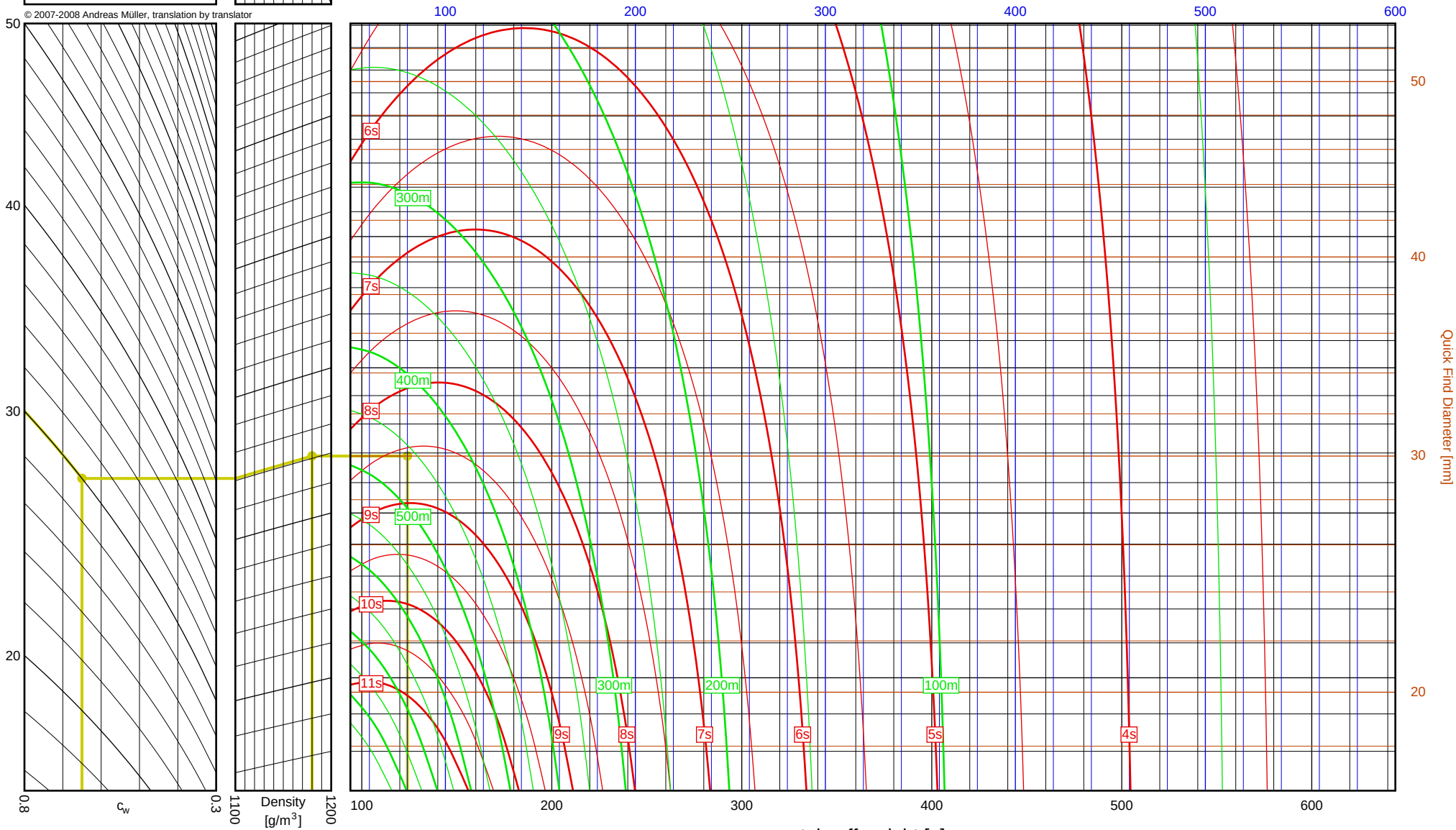
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.124kg
Results: time to apogee: 8.6s, expected altitude: 459m

empty weight [g]



D15T

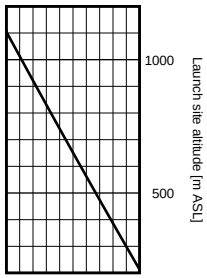
D15T

D-E

Aerotech E11J

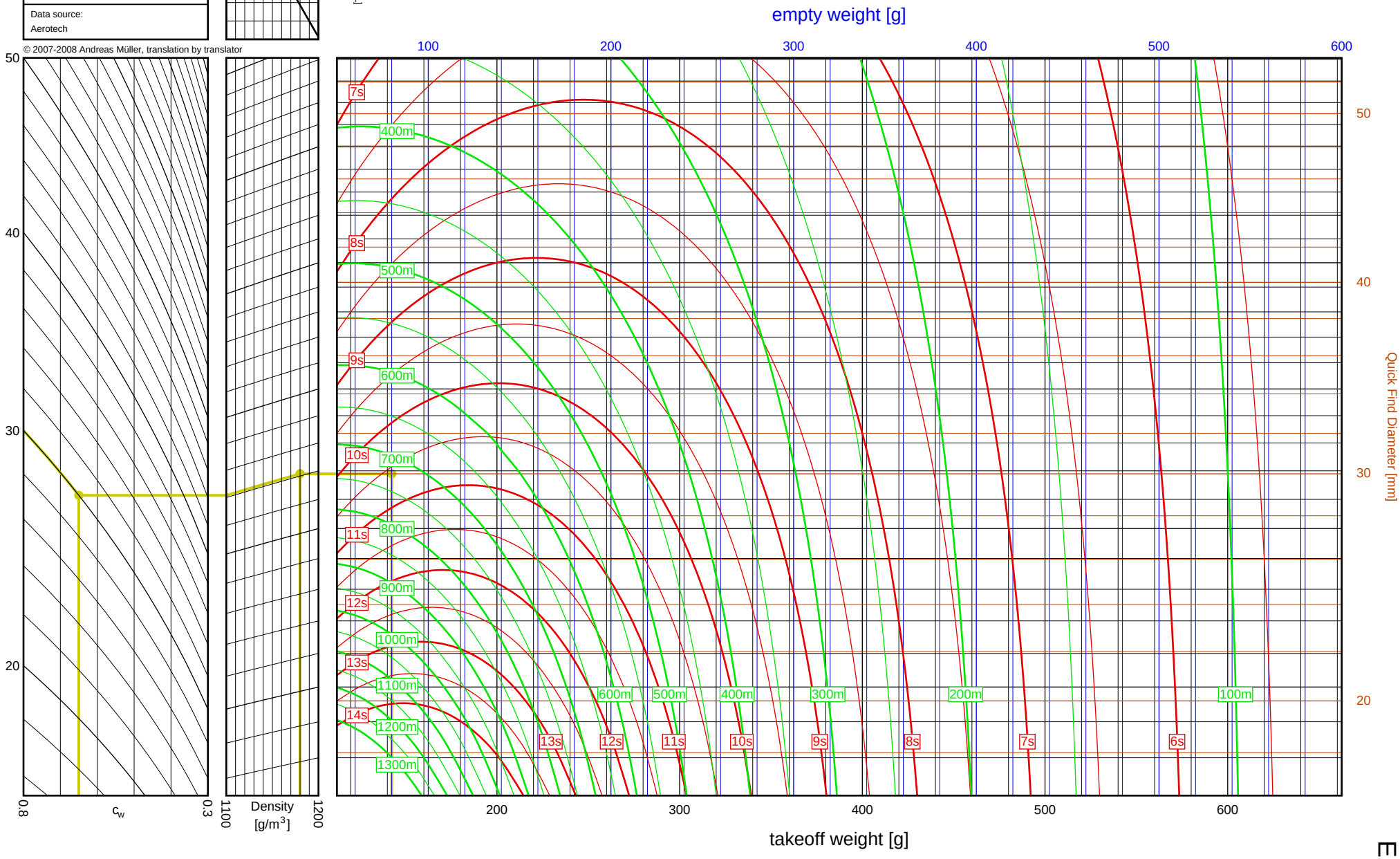
I_{tot}	=	32.9 Ns
F_{avg}	=	11.6 N
t_{burn}	=	2.83 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.142kg
Results: time to apogee: 10.6s, expected altitude: 725m

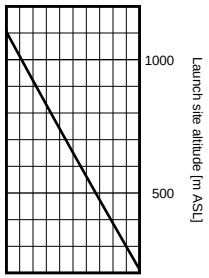


Aerotech

E12J-RC

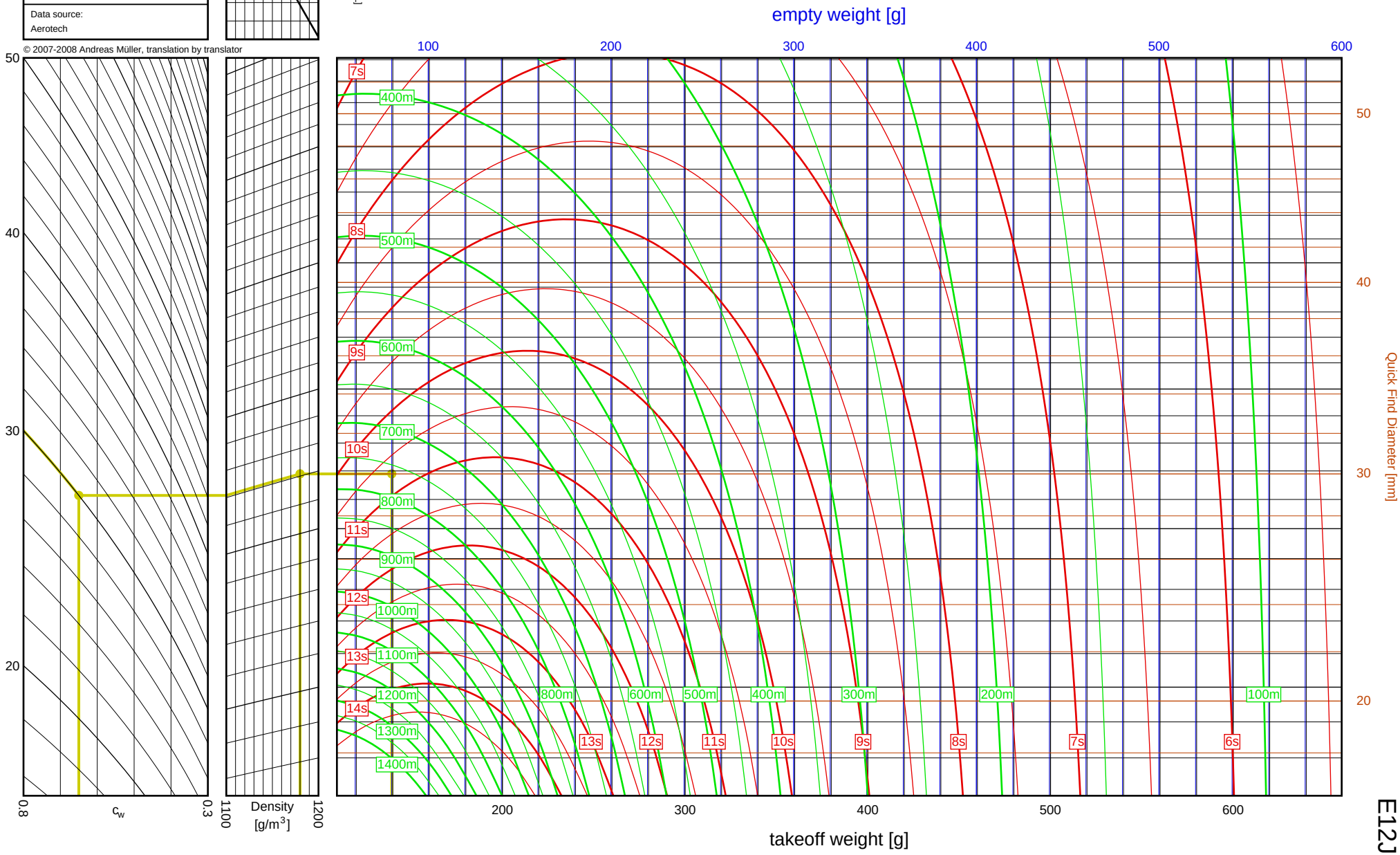
I_{tot}	=	34.2 Ns
F_{avg}	=	11.2 N
t_{burn}	=	3.05 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

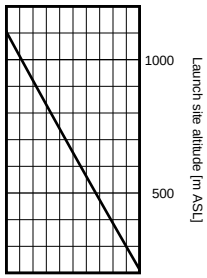
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.139kg
Results: time to apogee: 10.7s, expected altitude: 764m



Aerotech E23T

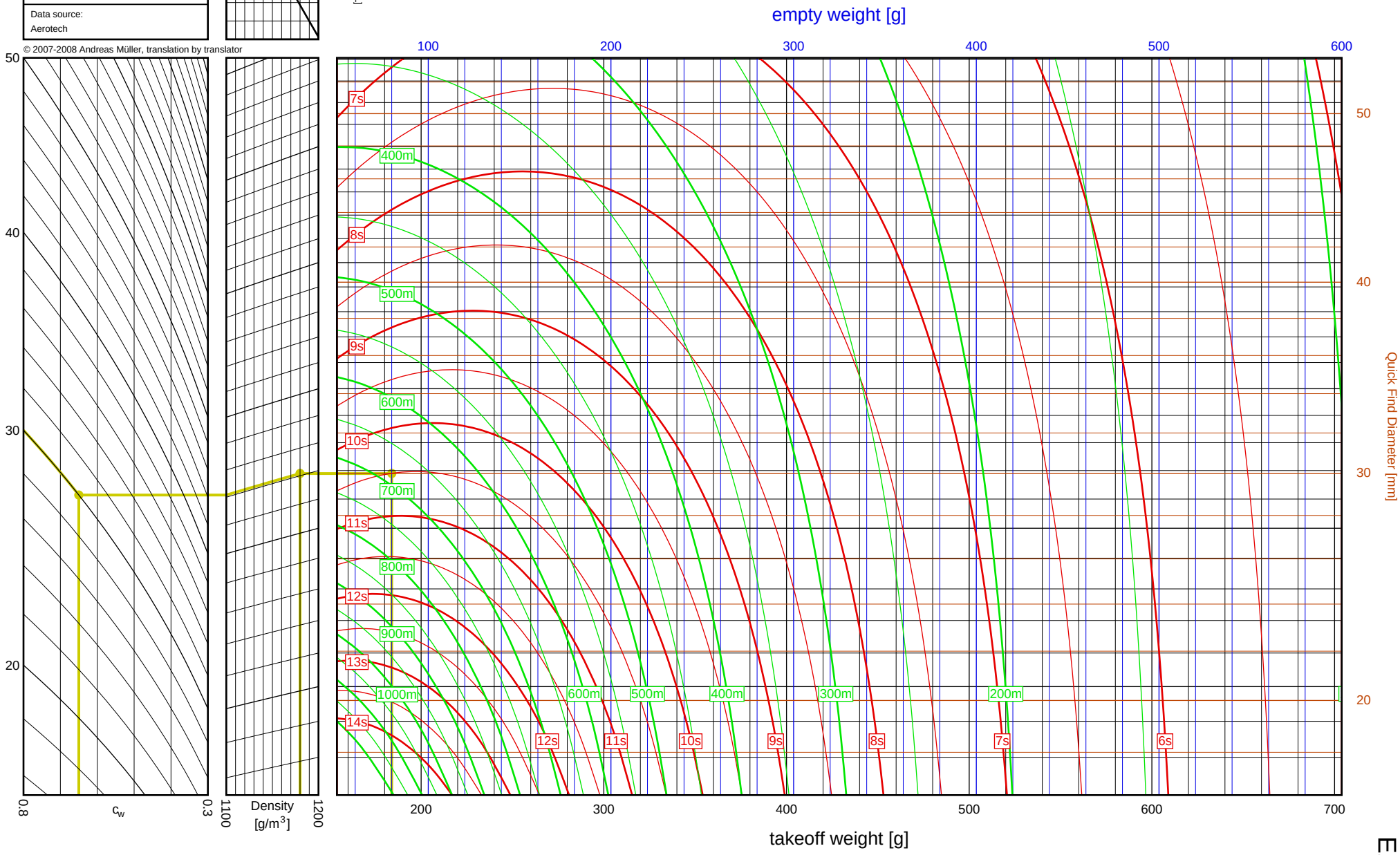
I_{tot}	=	35.3 Ns
F_{avg}	=	22.5 N
t_{burn}	=	1.57 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.184kg
Results: time to apogee: 10.5s, expected altitude: 686m

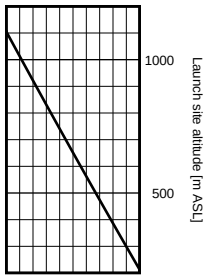


Aerotech

E16W

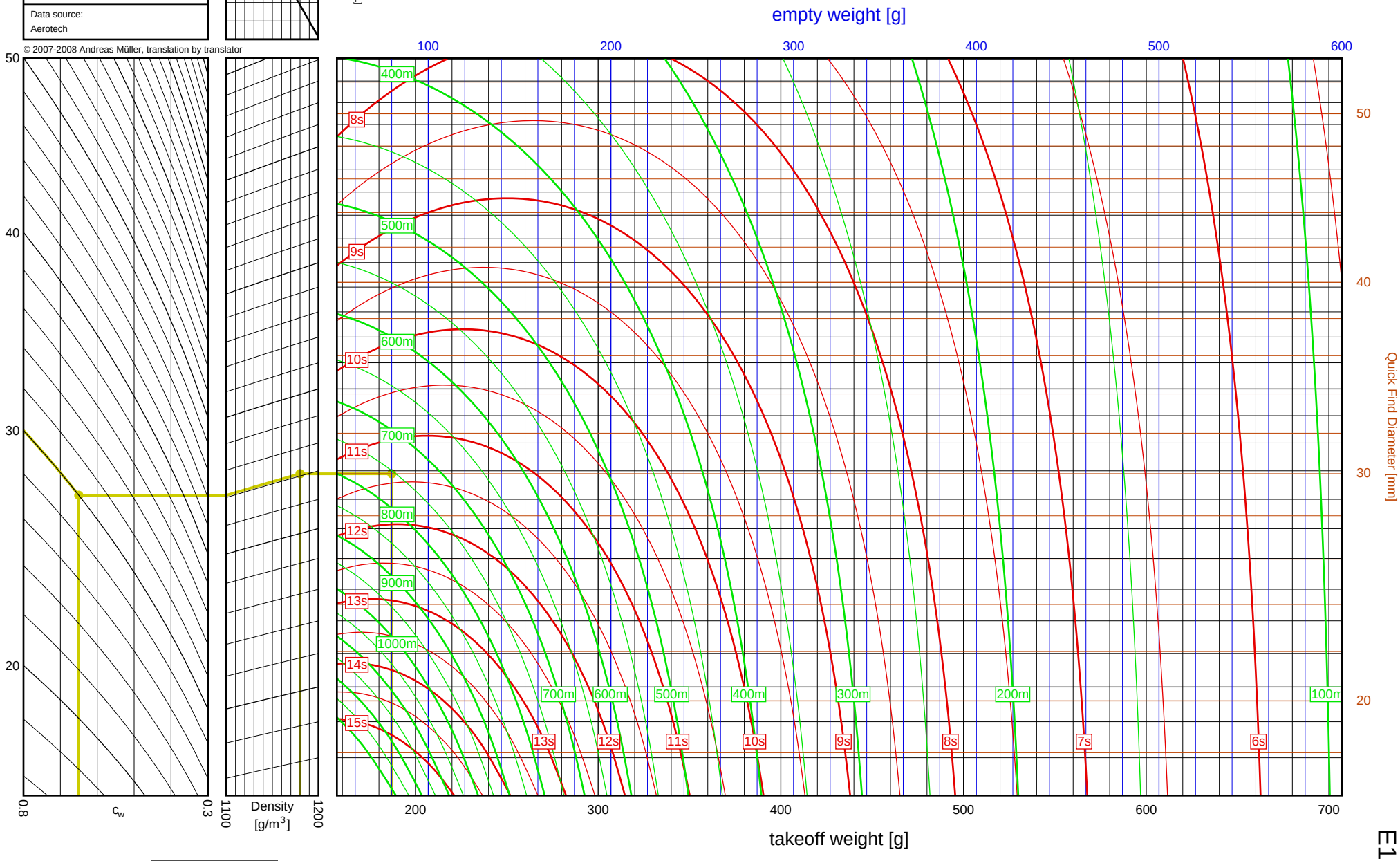
I_{tot}	=	38.4 Ns
F_{avg}	=	14.1 N
t_{burn}	=	2.72 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.187kg
Results: time to apogee: 11.4s, expected altitude: 754m



E16W

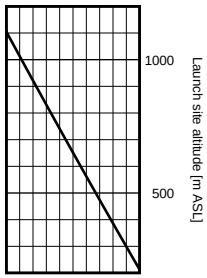
D-E

E16W

Aerotech E30T

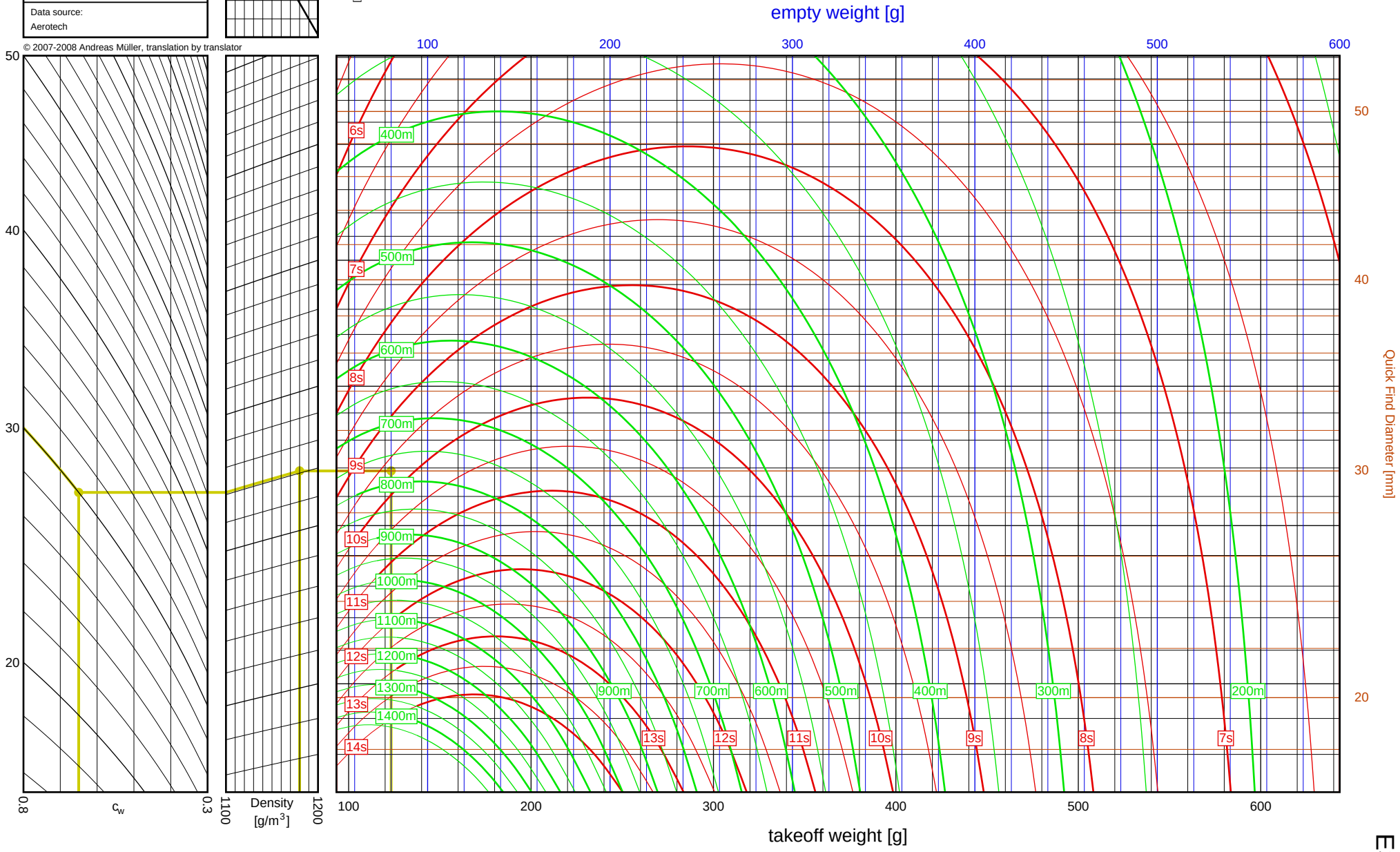
I_{tot}	=	39.5 Ns
F_{avg}	=	32.4 N
t_{burn}	=	1.22 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

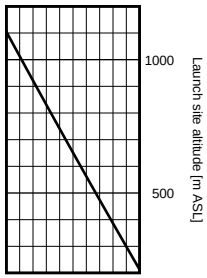
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.123kg
Results: time to apogee: 9.7s, expected altitude: 777m



Aerotech
E28T

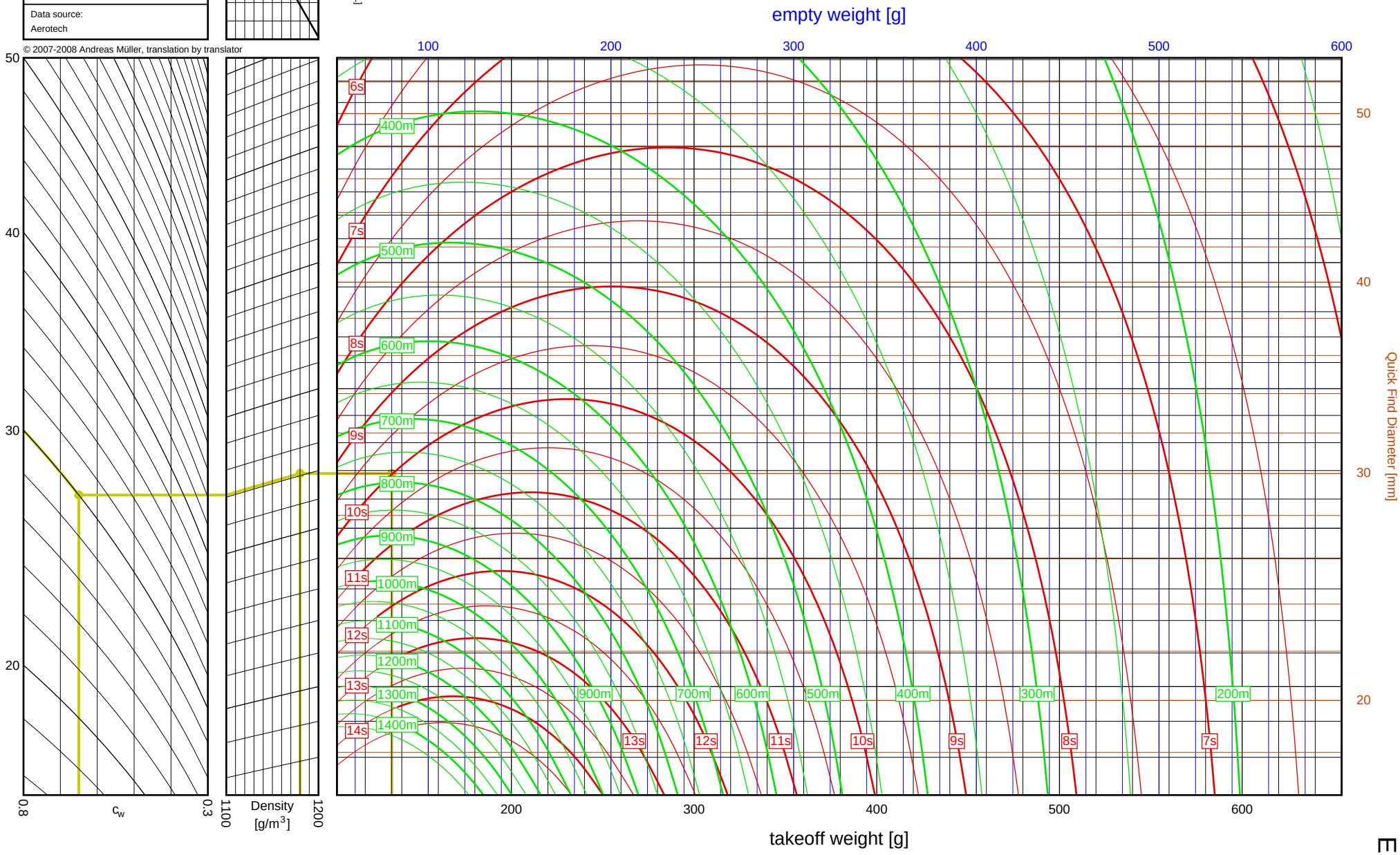
I_{tot}	=	39.7 Ns
F_{avg}	=	32.5 N
t_{burn}	=	1.22 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

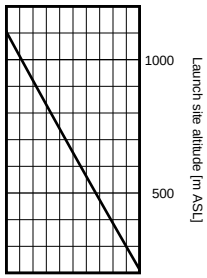
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.135kg
Results: time to apogee: 10.0s, expected altitude: 785m



Aerotech E15W

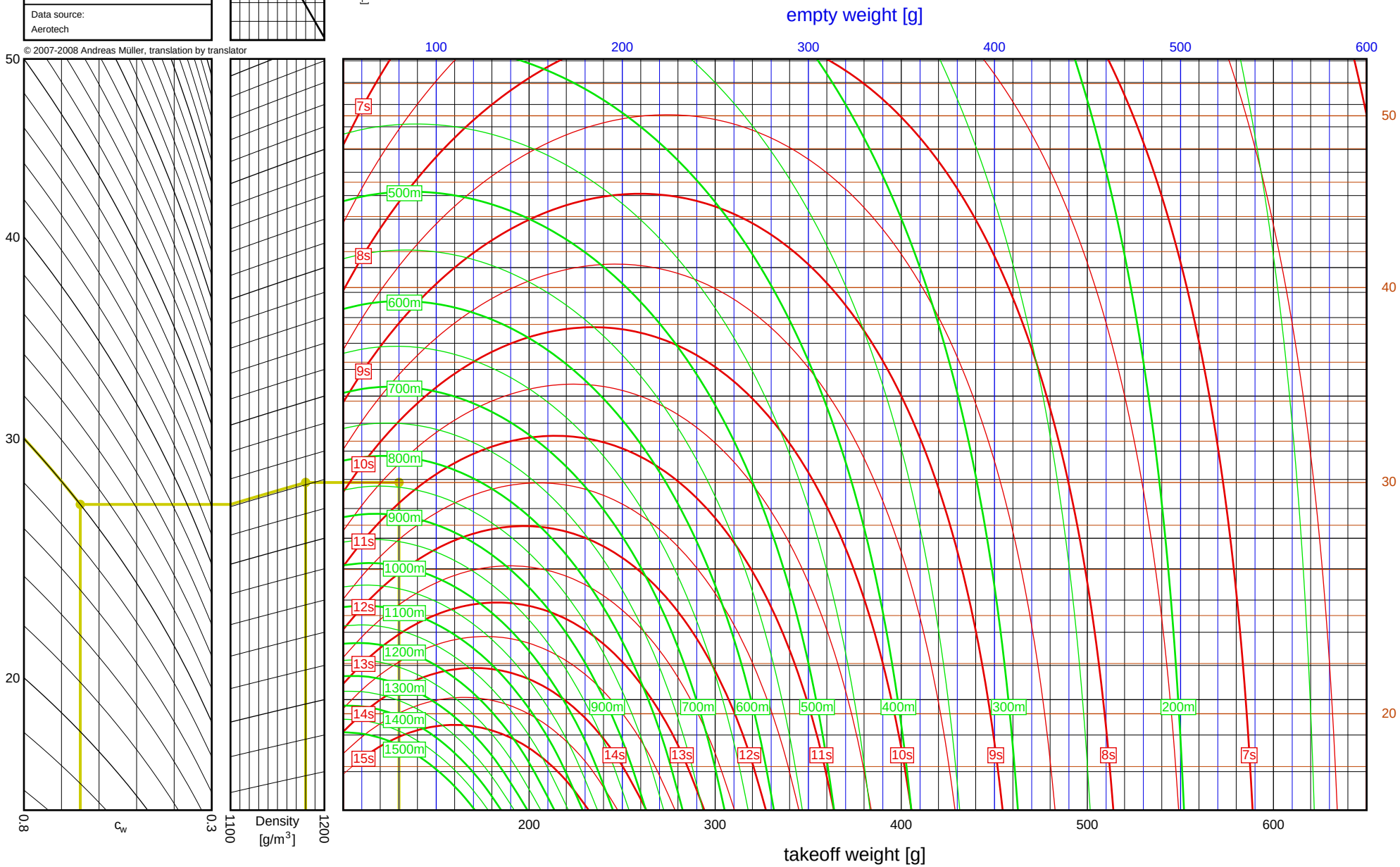
I_{tot}	=	39.8 Ns
F_{avg}	=	15.1 N
t_{burn}	=	2.64 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

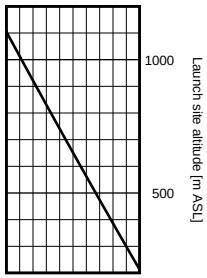
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.130kg
Results: time to apogee: 10.7s, expected altitude: 843m



Aerotech E18W

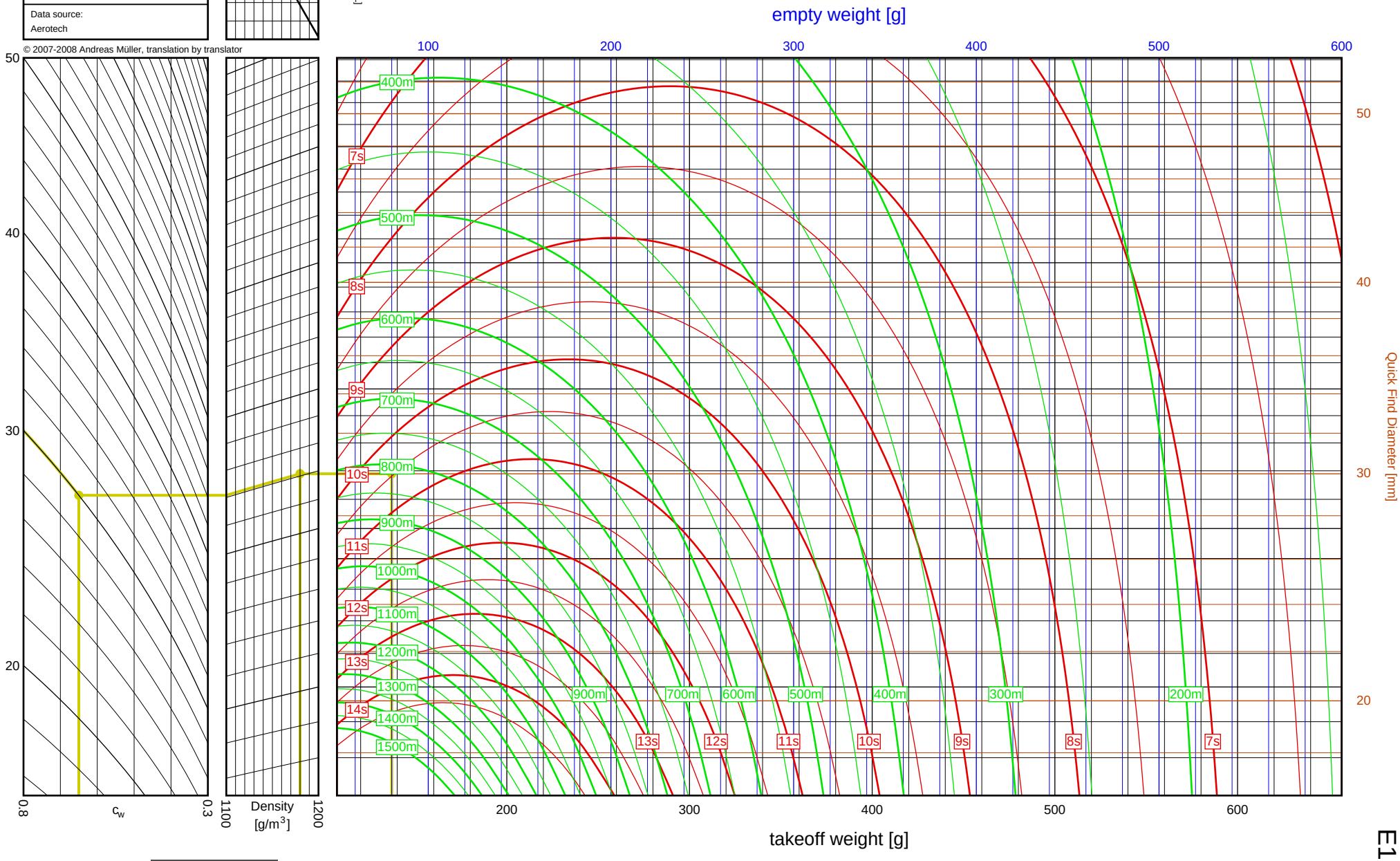
I_{tot}	=	39.8 Ns
F_{avg}	=	18.1 N
t_{burn}	=	2.20 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

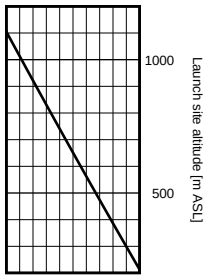
Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.137kg
Results: time to apogee: 10.5s, expected altitude: 816m



Aerotech F12J

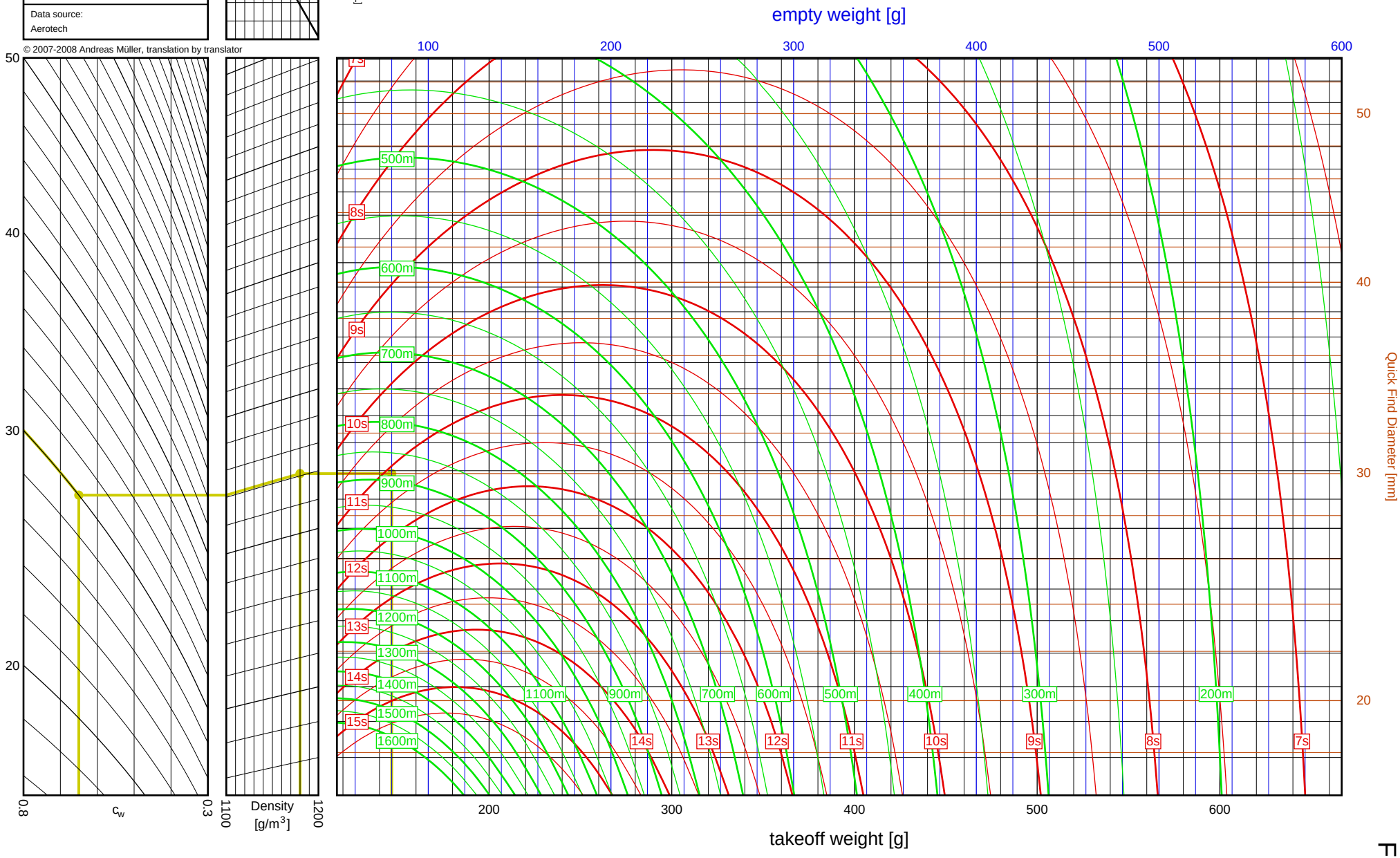
I_{tot}	=	43.2 Ns
F_{avg}	=	14.7 N
t_{burn}	=	2.93 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.147kg
Results: time to apogee: 11.1s, expected altitude: 887m



F12J

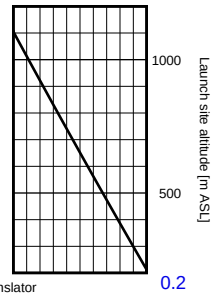
D-E

F12J

Aerotech F62T

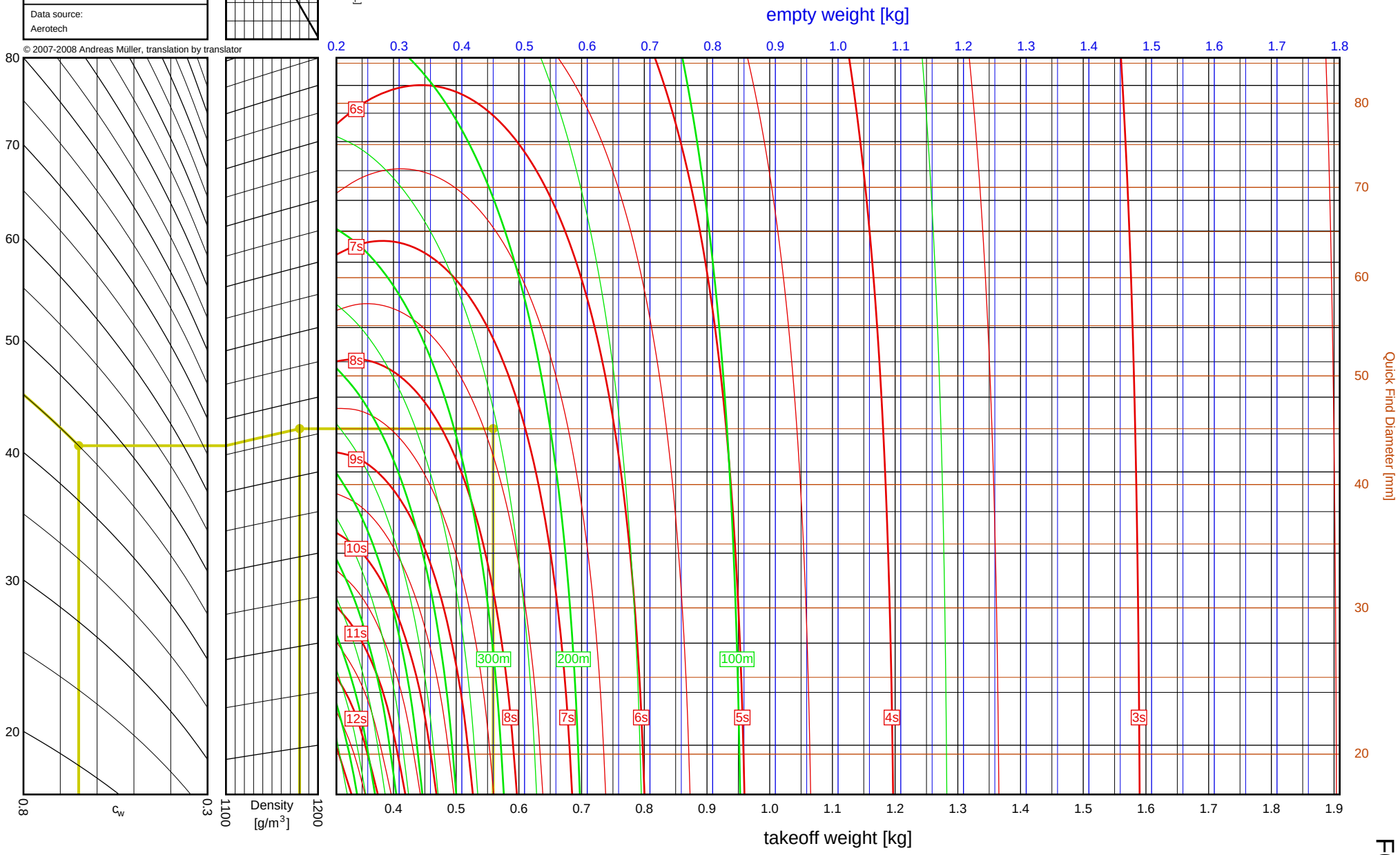
I_{tot}	=	46.2 Ns
F_{avg}	=	46.2 N
t_{burn}	=	1.00 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

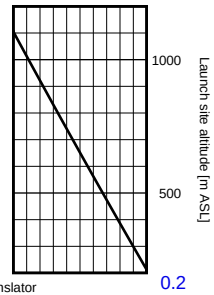
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.559kg
Results: time to apogee: 7.4s, expected altitude: 255m



Aerotech F24W

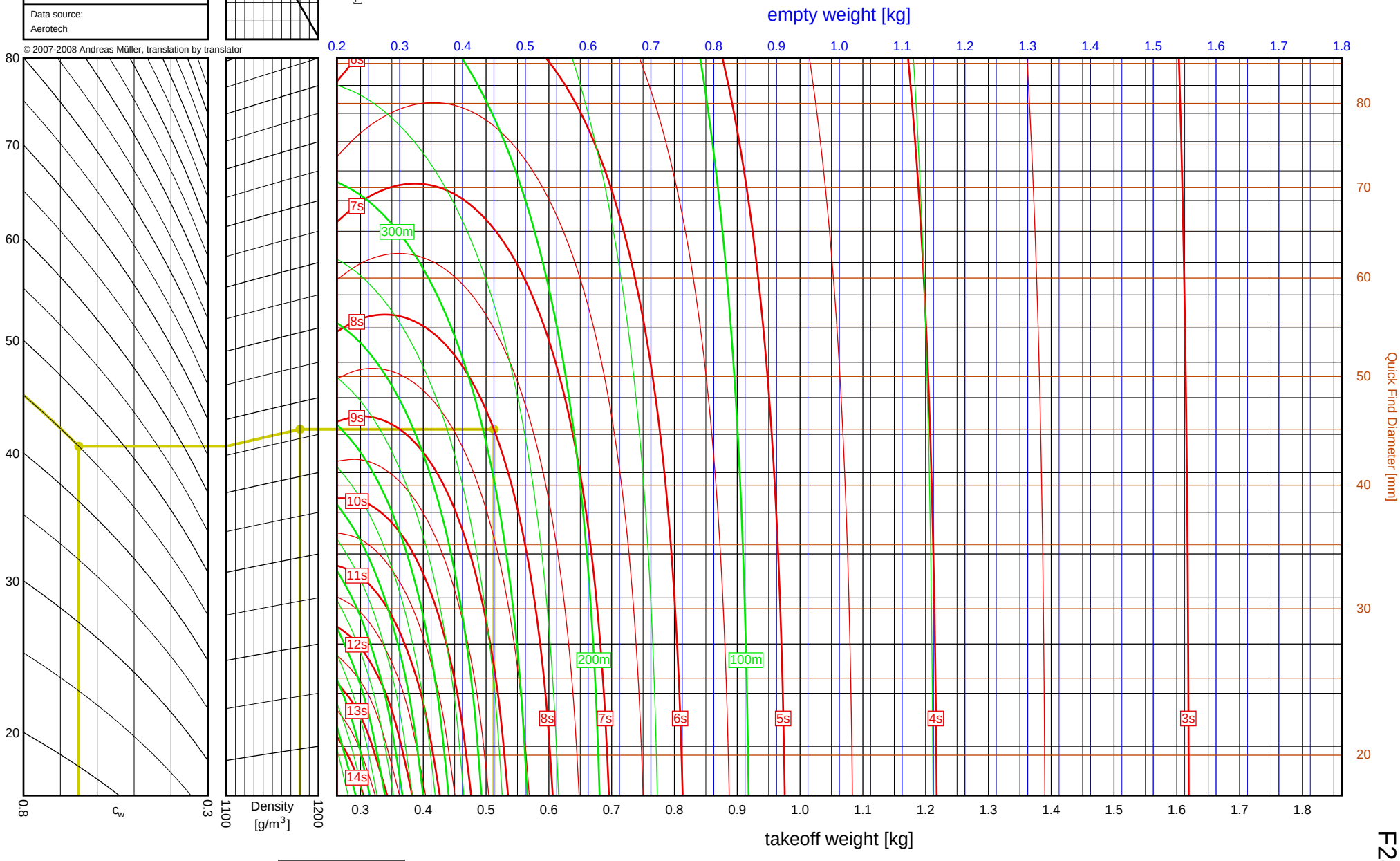
I_{tot}	=	47.3 Ns
F_{avg}	=	22.2 N
t_{burn}	=	2.13 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

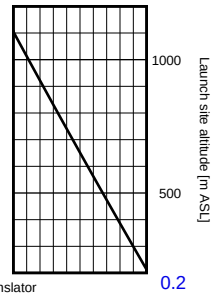
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.512kg
Results: time to apogee: 8.0s, expected altitude: 286m



Aerotech F27R

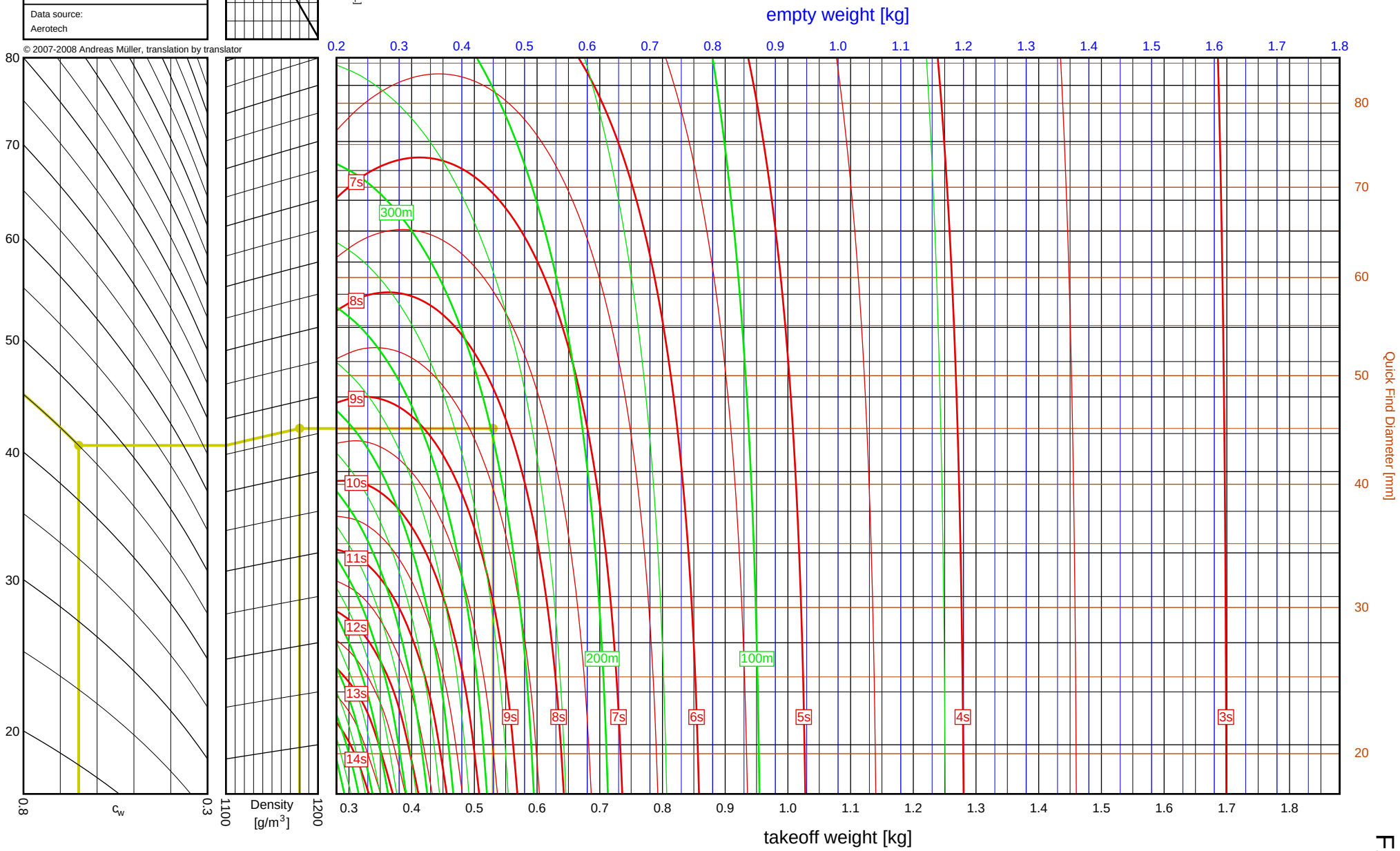
I_{tot}	=	49.5 Ns
F_{avg}	=	20.4 N
t_{burn}	=	2.42 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

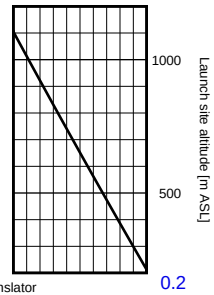
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.530kg
Results: time to apogee: 8.2s, expected altitude: 297m



Aerotech F39T

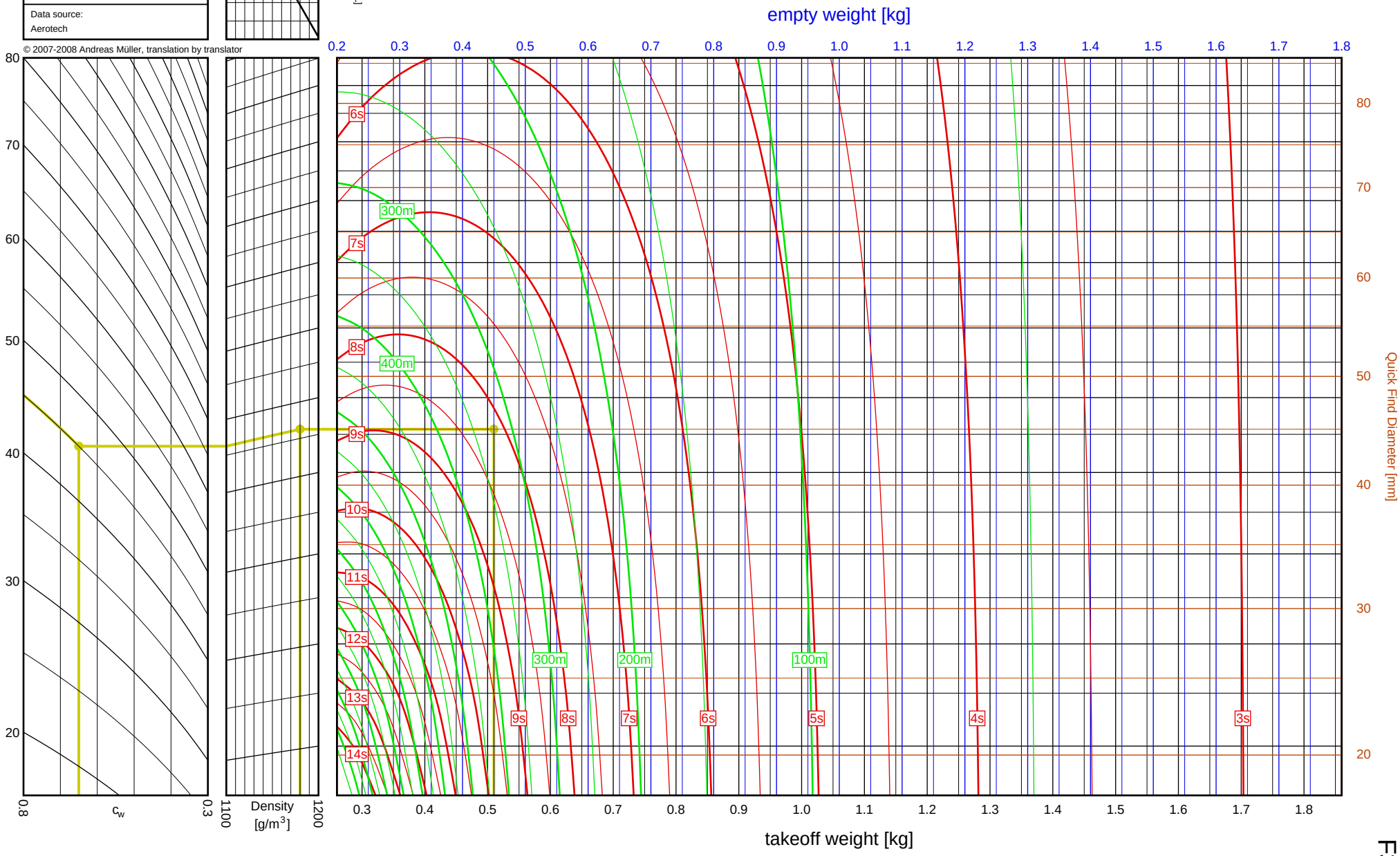
I_{tot}	=	49.7 Ns
F_{avg}	=	37.3 N
t_{burn}	=	1.33 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

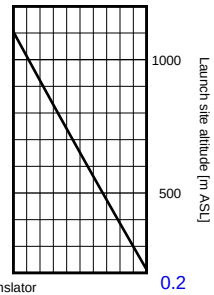
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.510kg
Results: time to apogee: 8.1s, expected altitude: 323m



Aerotech F37W

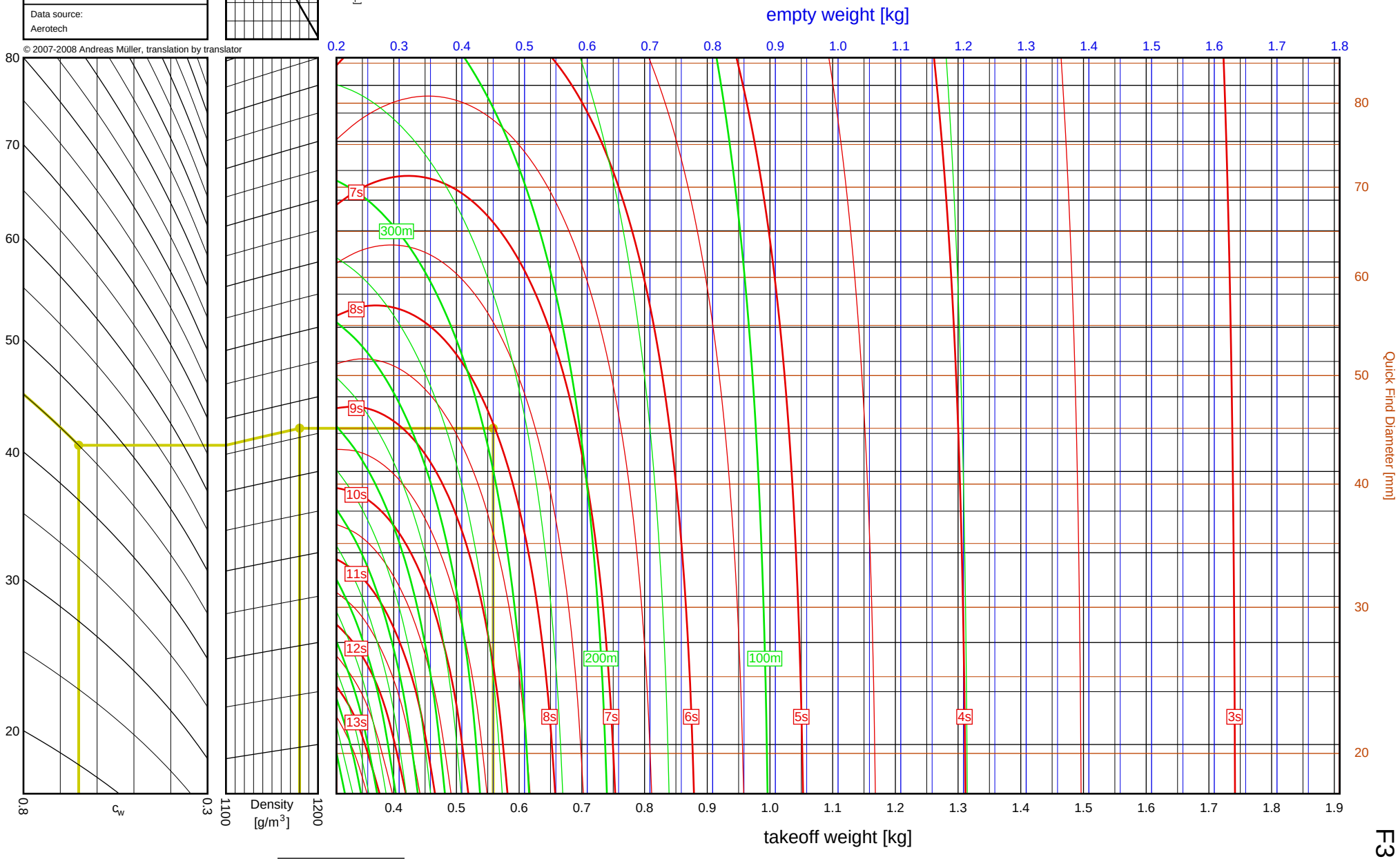
I_{tot}	=	50.7 Ns
F_{avg}	=	31.7 N
t_{burn}	=	1.60 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

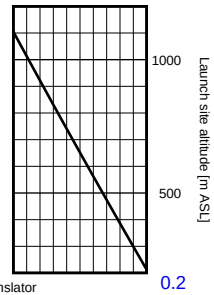
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.559kg
Results: time to apogee: 8.0s, expected altitude: 288m



Aerotech F23FJ

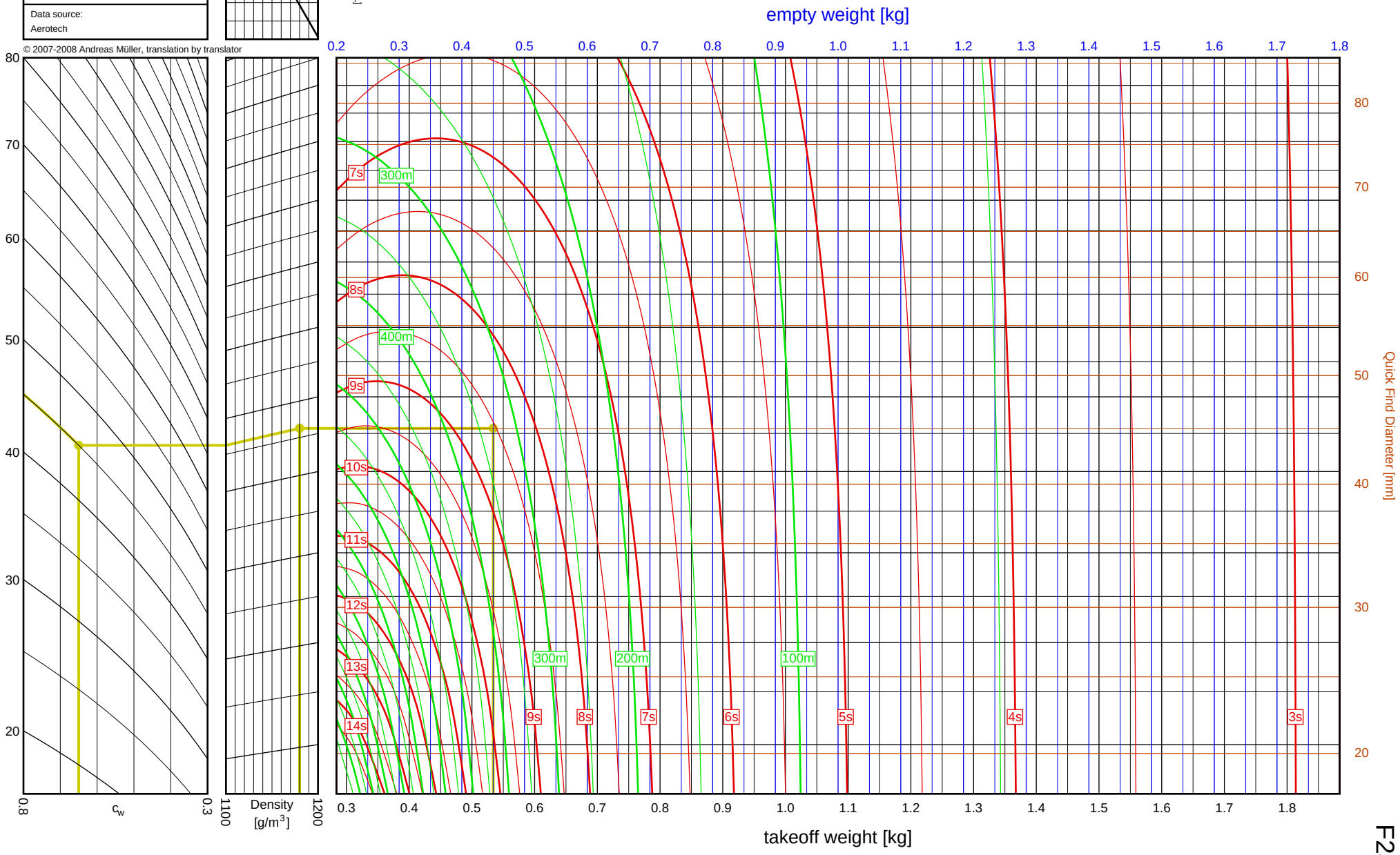
I_{tot}	=	52.8 Ns
F_{avg}	=	23.8 N
t_{burn}	=	2.22 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

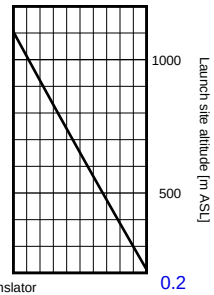
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.534kg
Results: time to apogee: 8.5s, expected altitude: 331m



Aerotech F21W

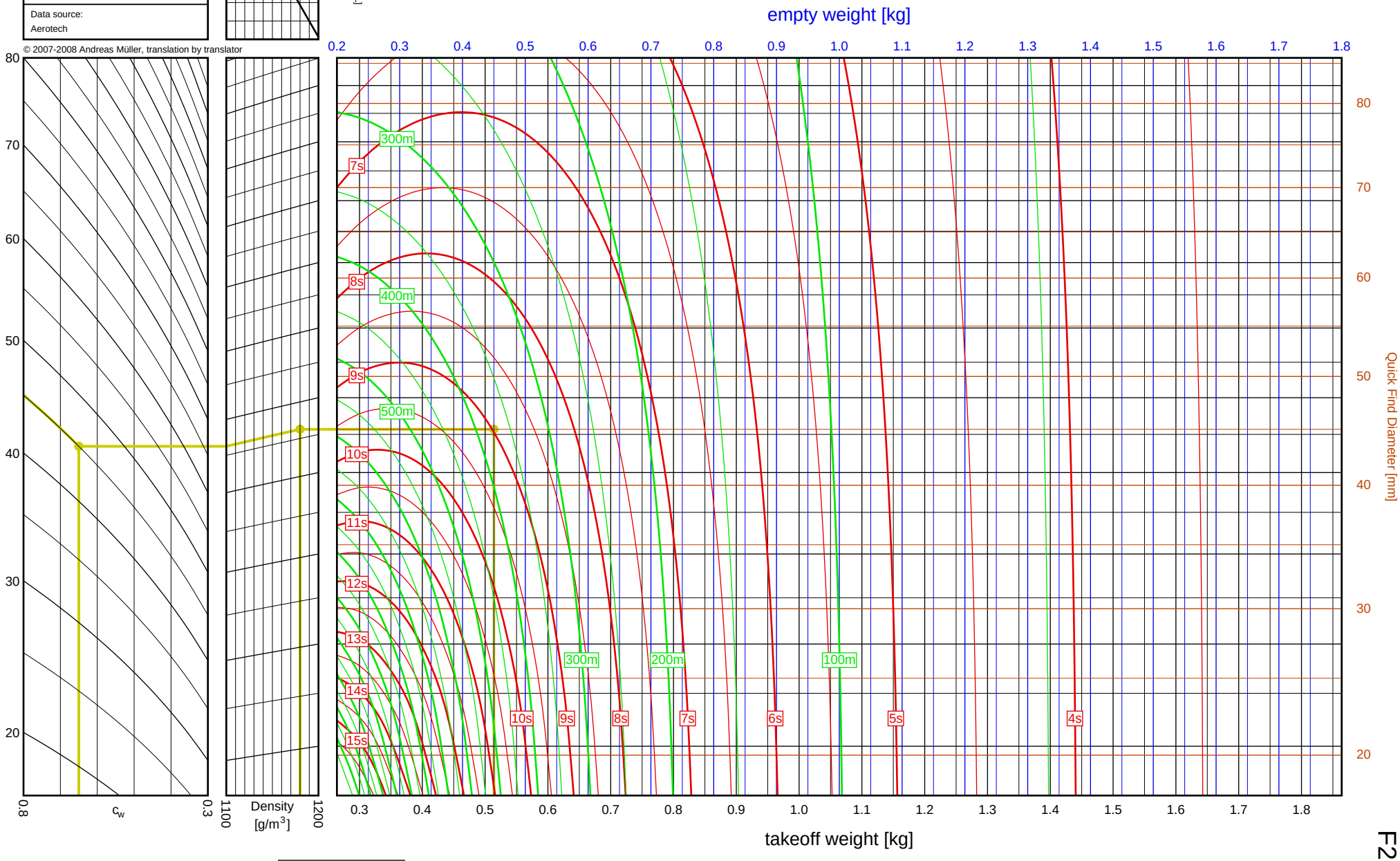
I_{tot}	=	55.8 Ns
F_{avg}	=	22.2 N
t_{burn}	=	2.52 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

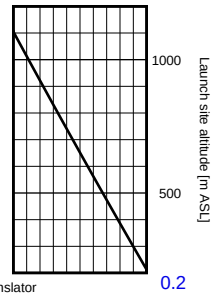
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.514kg
Results: time to apogee: 9.0s, expected altitude: 373m



Aerotech F42T

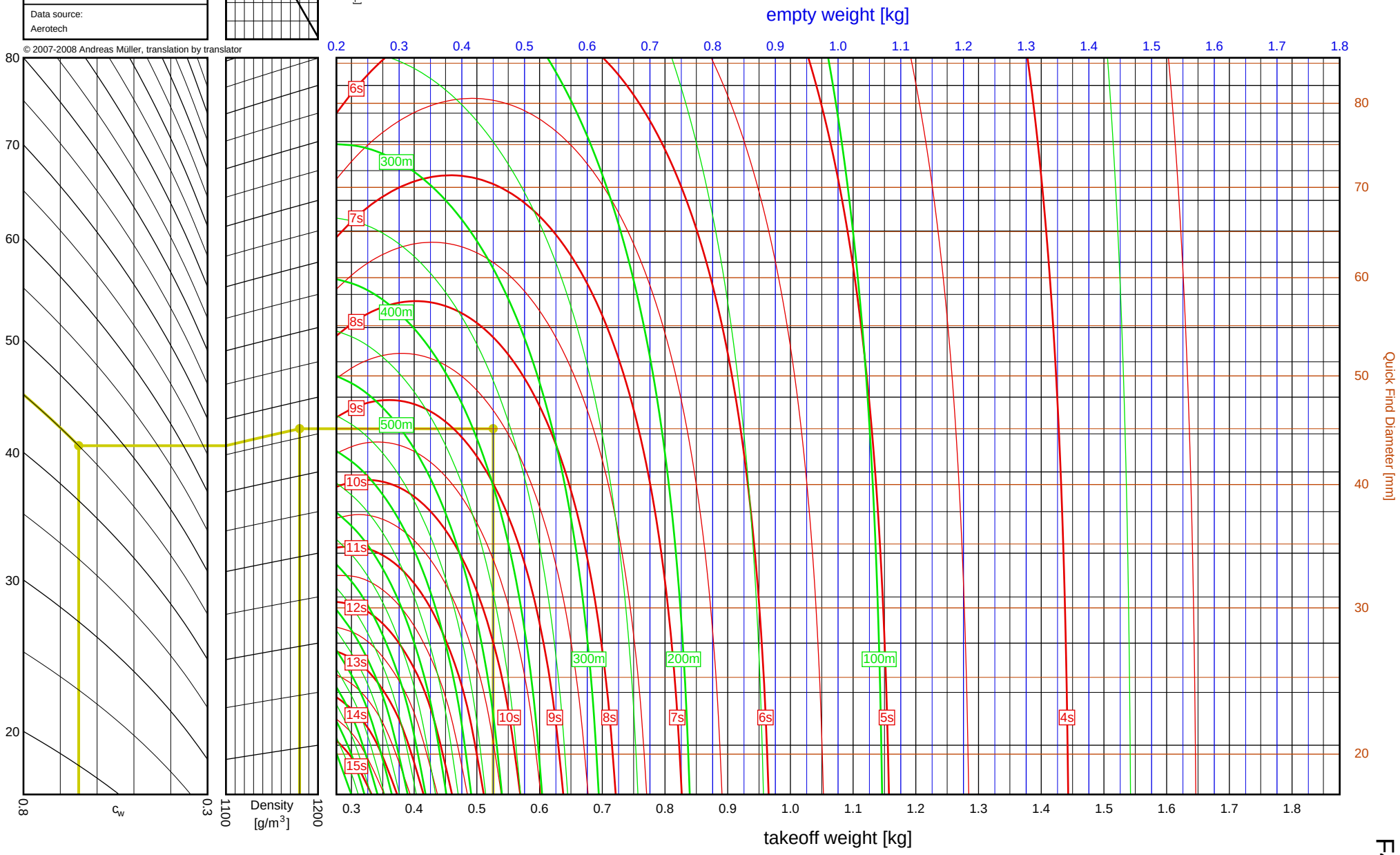
I_{tot}	=	55.9 Ns
F_{avg}	=	38.0 N
t_{burn}	=	1.47 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

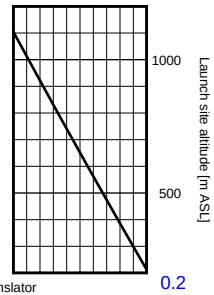
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.526kg
Results: time to apogee: 8.6s, expected altitude: 373m



Aerotech F35W

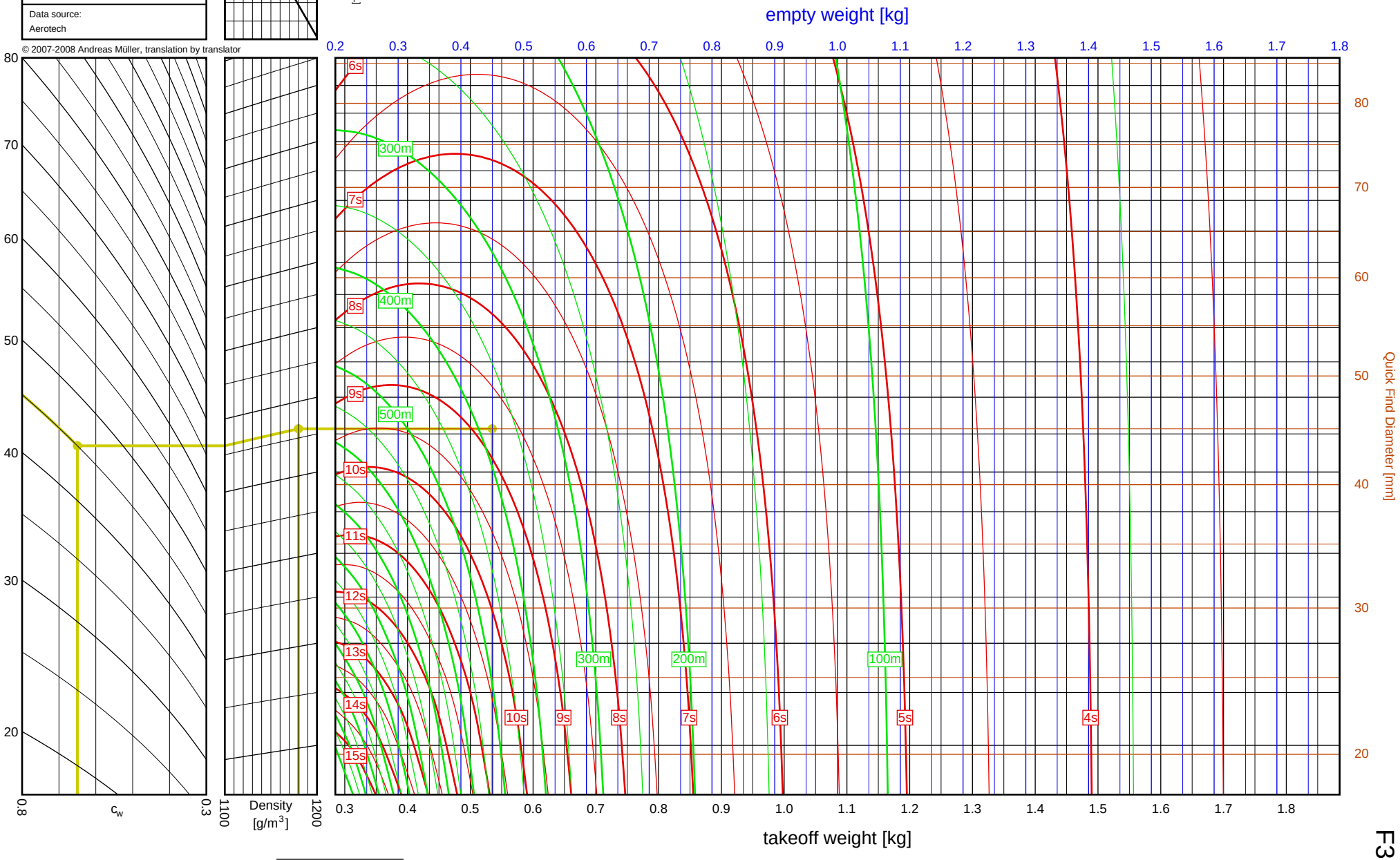
I_{tot}	=	57.6 Ns
F_{avg}	=	36.0 N
t_{burn}	=	1.60 s
d	=	24 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

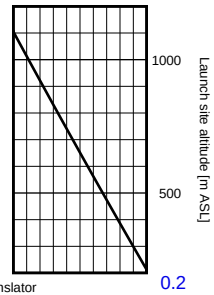
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.535kg
Results: time to apogee: 8.8s, expected altitude: 381m



Aerotech F20W

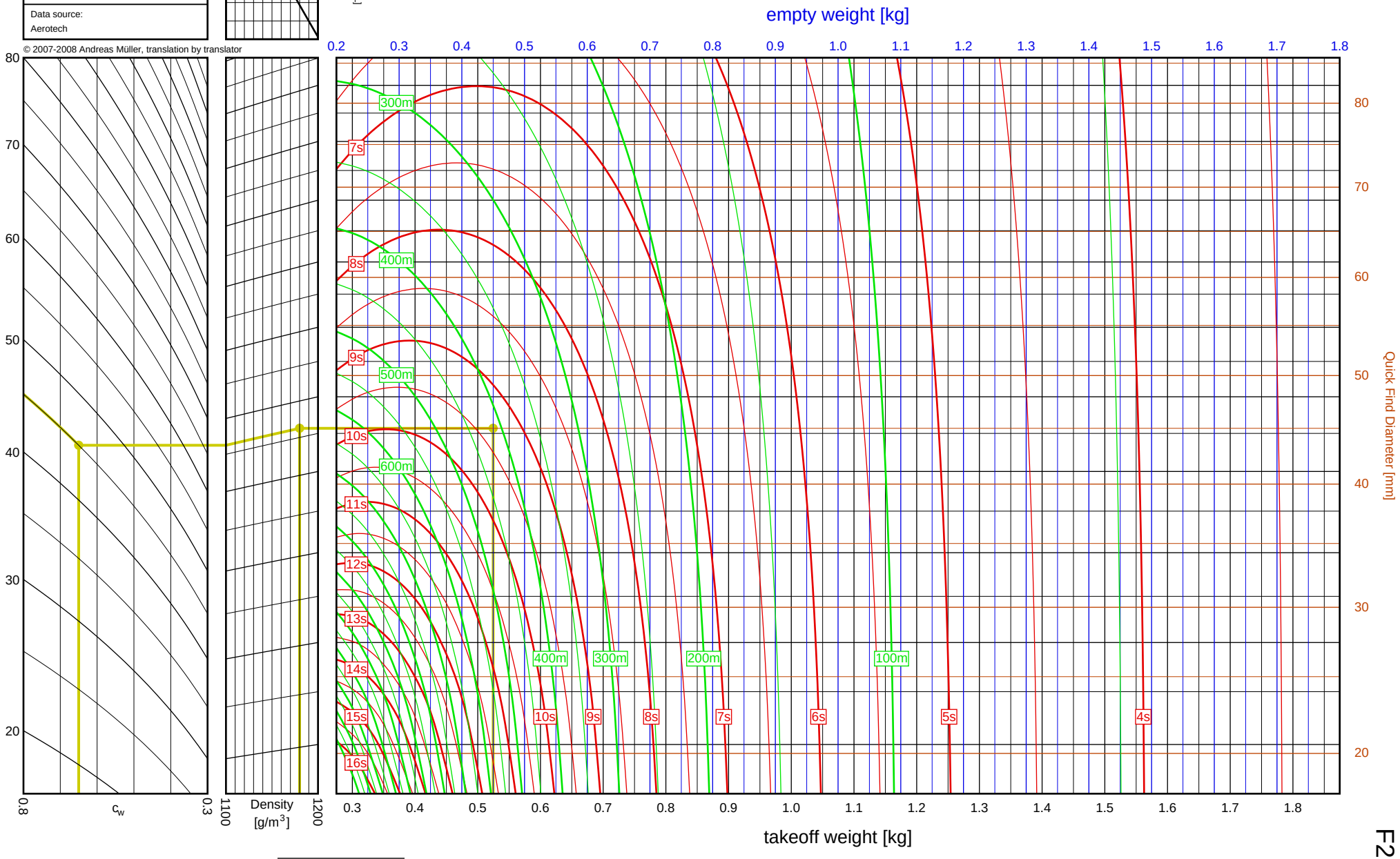
I_{tot}	=	60.6 Ns
F_{avg}	=	22.6 N
t_{burn}	=	2.68 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.525kg
Results: time to apogee: 9.3s, expected altitude: 413m

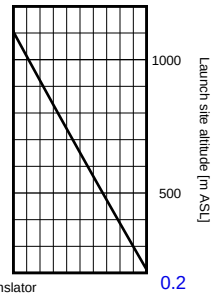


Aerotech

F26FJ

I_{tot}	=	62.5 Ns
F_{avg}	=	23.9 N
t_{burn}	=	2.61 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.551kg
Results: time to apogee: 9.5s, expected altitude: 409m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

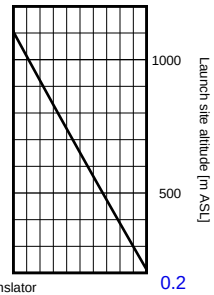
Density [g/m^3]

F26FJ

Aerotech F22J

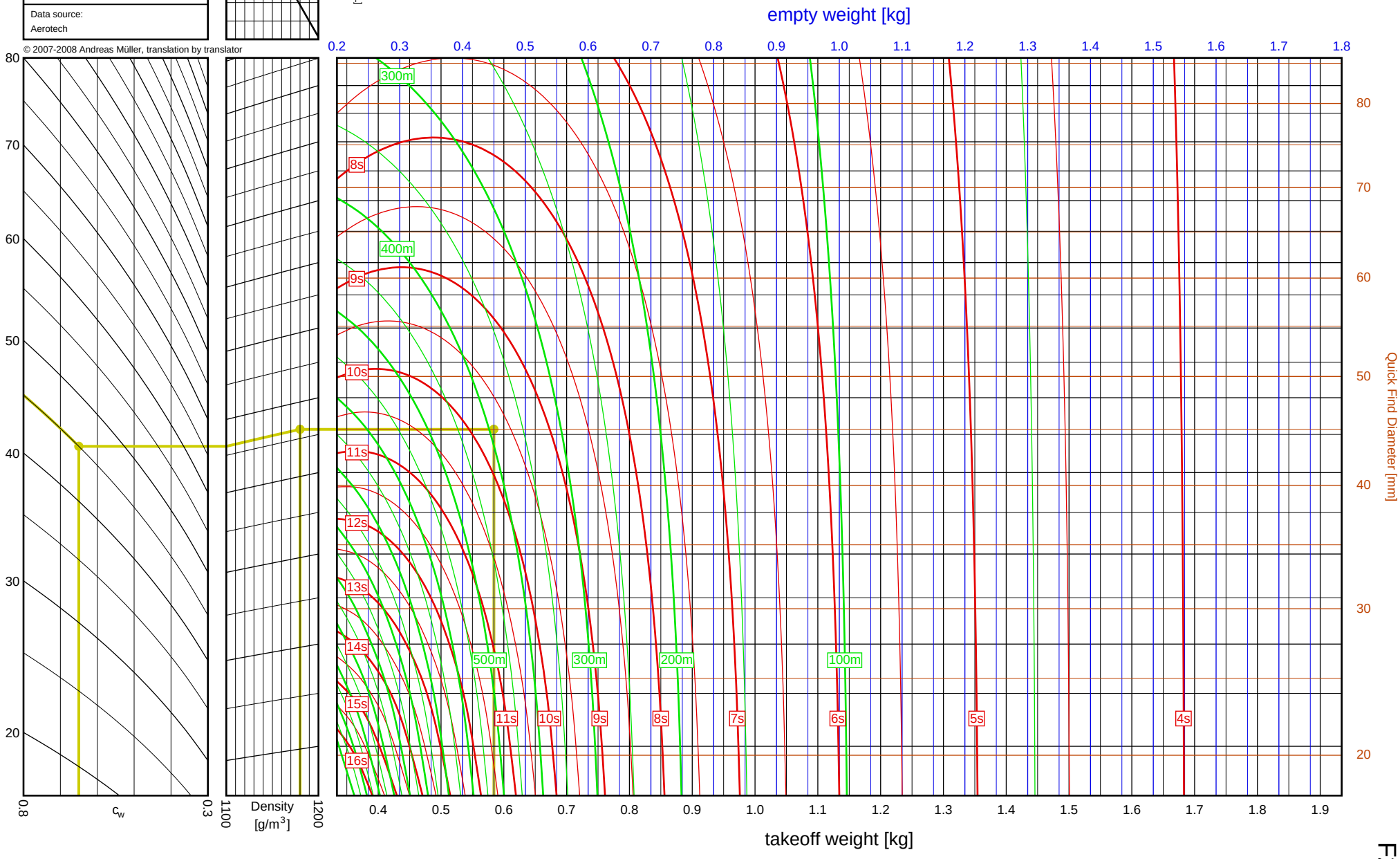
I_{tot}	=	65.0 Ns
F_{avg}	=	19.6 N
t_{burn}	=	3.31 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

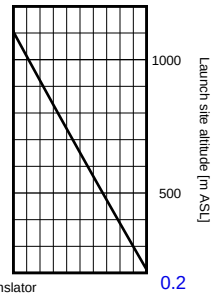
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.584kg
Results: time to apogee: 9.7s, expected altitude: 393m



Aerotech F50T

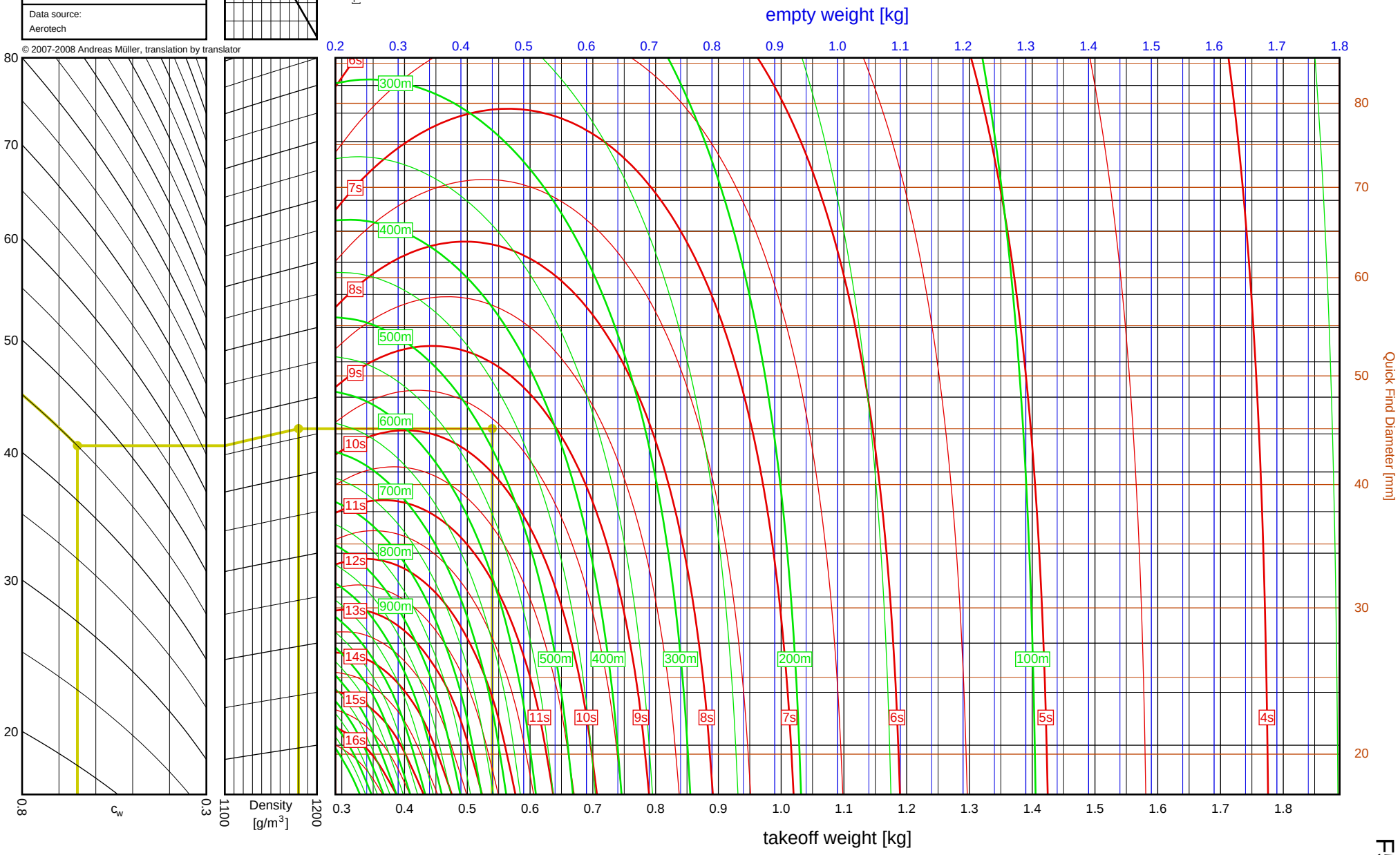
I_{tot}	=	68.7 Ns
F_{avg}	=	48.1 N
t_{burn}	=	1.43 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

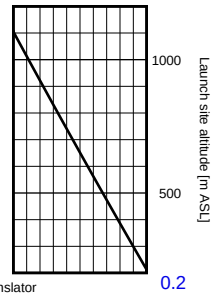
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.540kg
Results: time to apogee: 9.6s, expected altitude: 485m



Aerotech F25W

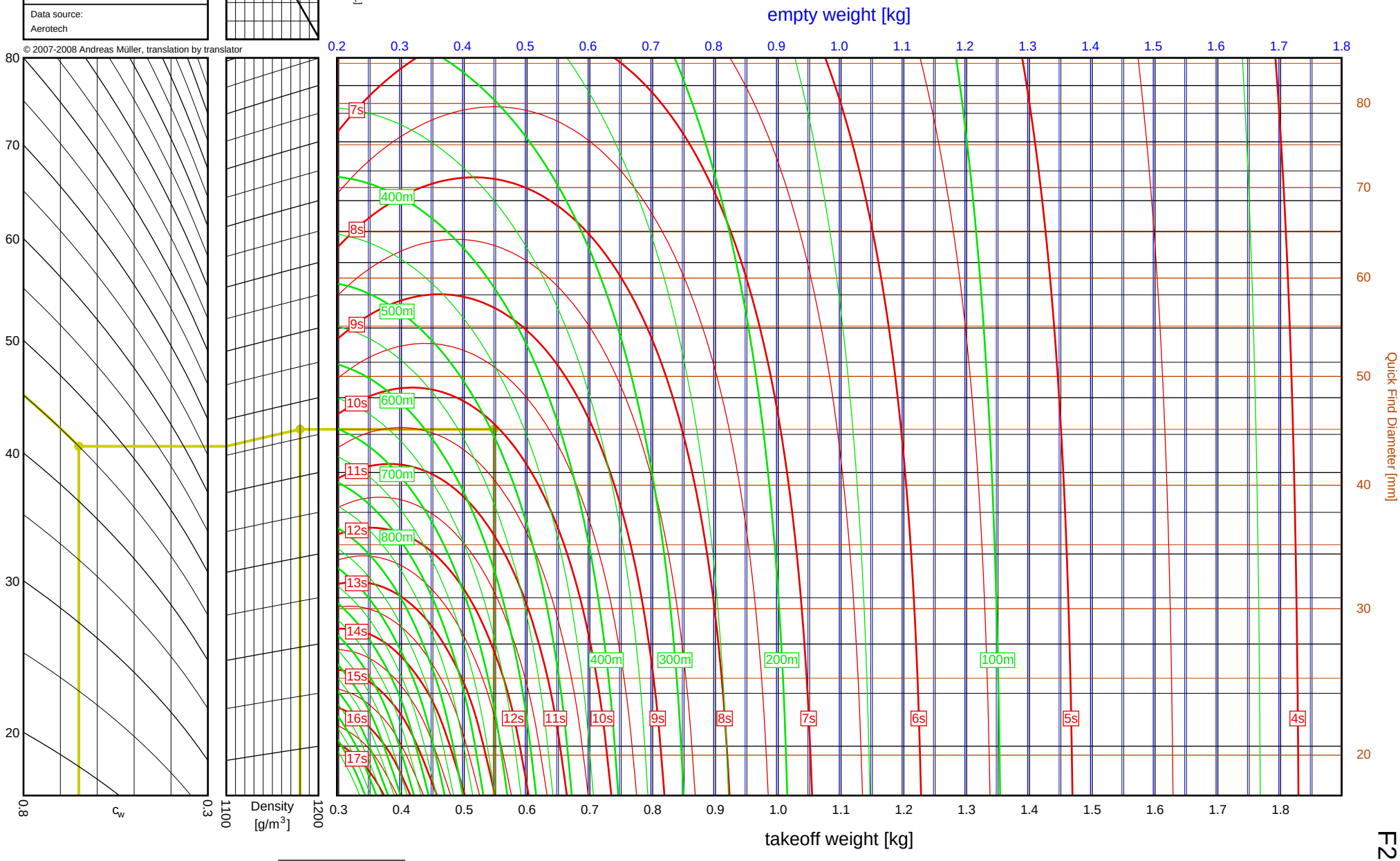
I_{tot}	=	70.8 Ns
F_{avg}	=	26.3 N
t_{burn}	=	2.69 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.547kg
Results: time to apogee: 10.1s, expected altitude: 496m

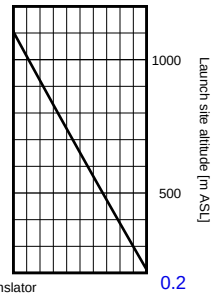


Aerotech

F52T

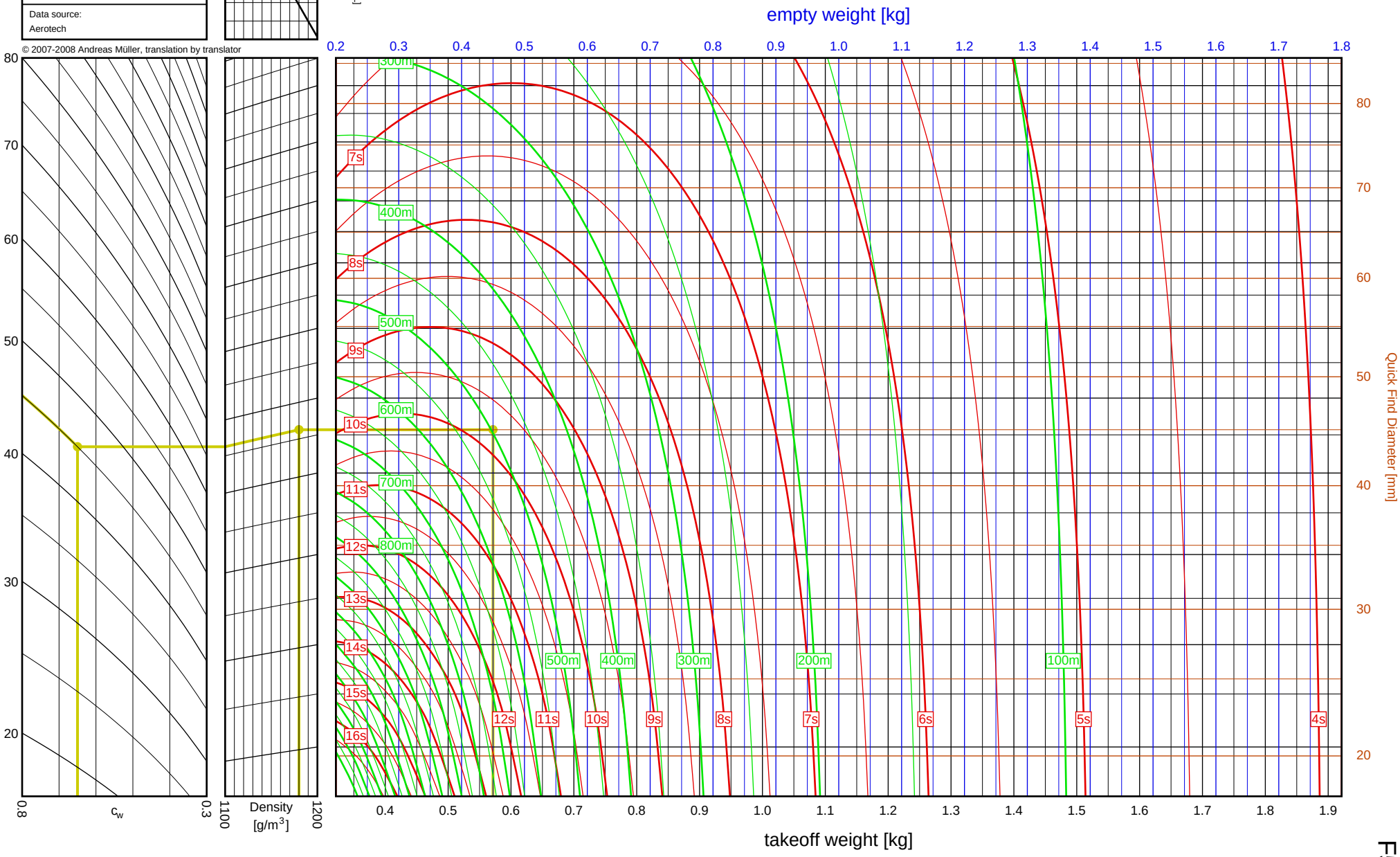
I_{tot}	=	73.0 Ns
F_{avg}	=	51.4 N
t_{burn}	=	1.42 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.571kg
Results: time to apogee: 9.8s, expected altitude: 498m

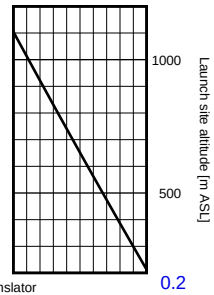


Aerotech

G104T

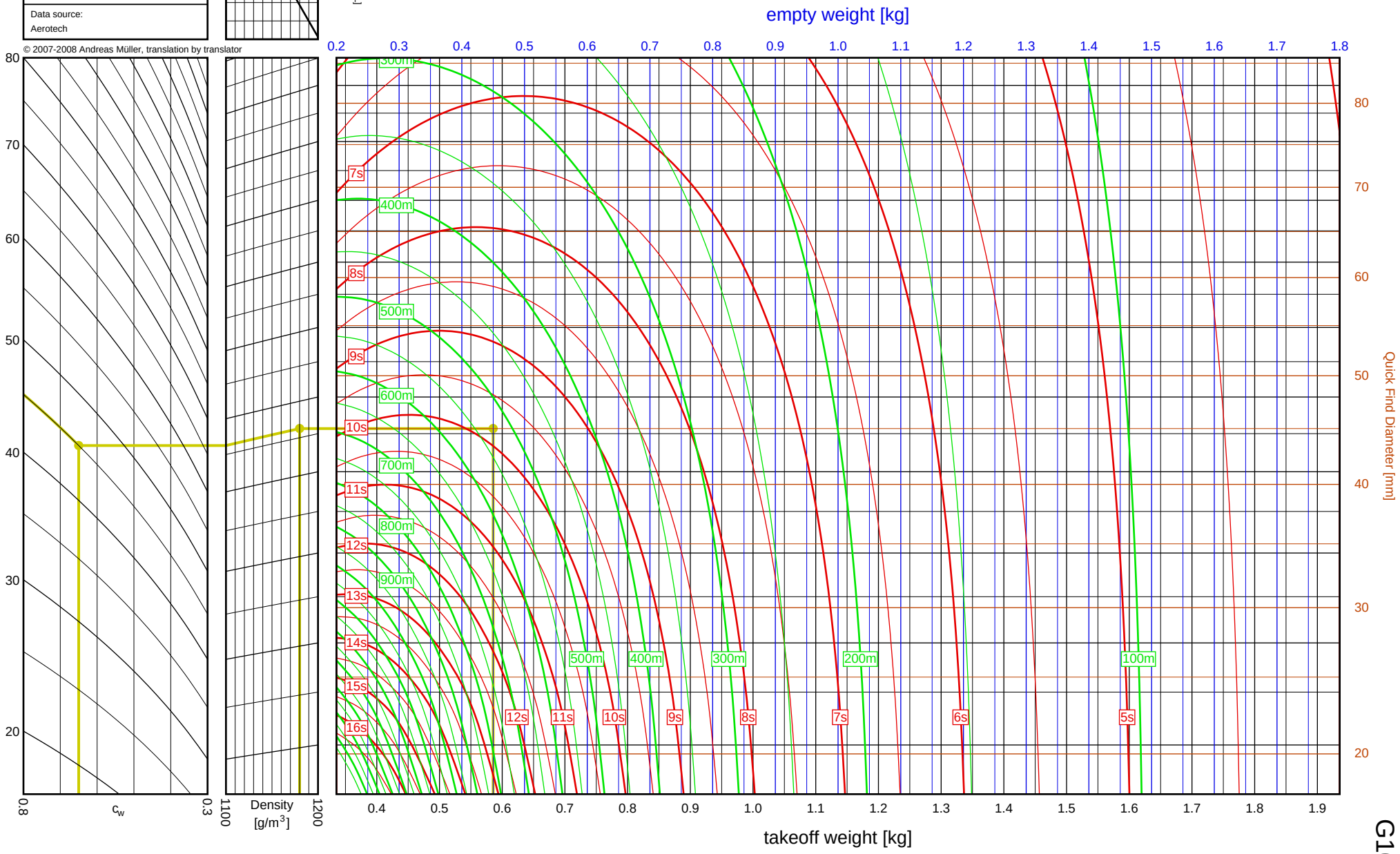
I_{tot}	=	76.9 Ns
F_{avg}	=	85.5 N
t_{burn}	=	0.90 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

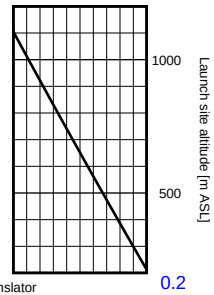
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.586kg
Results: time to apogee: 9.8s, expected altitude: 526m



Aerotech F40W

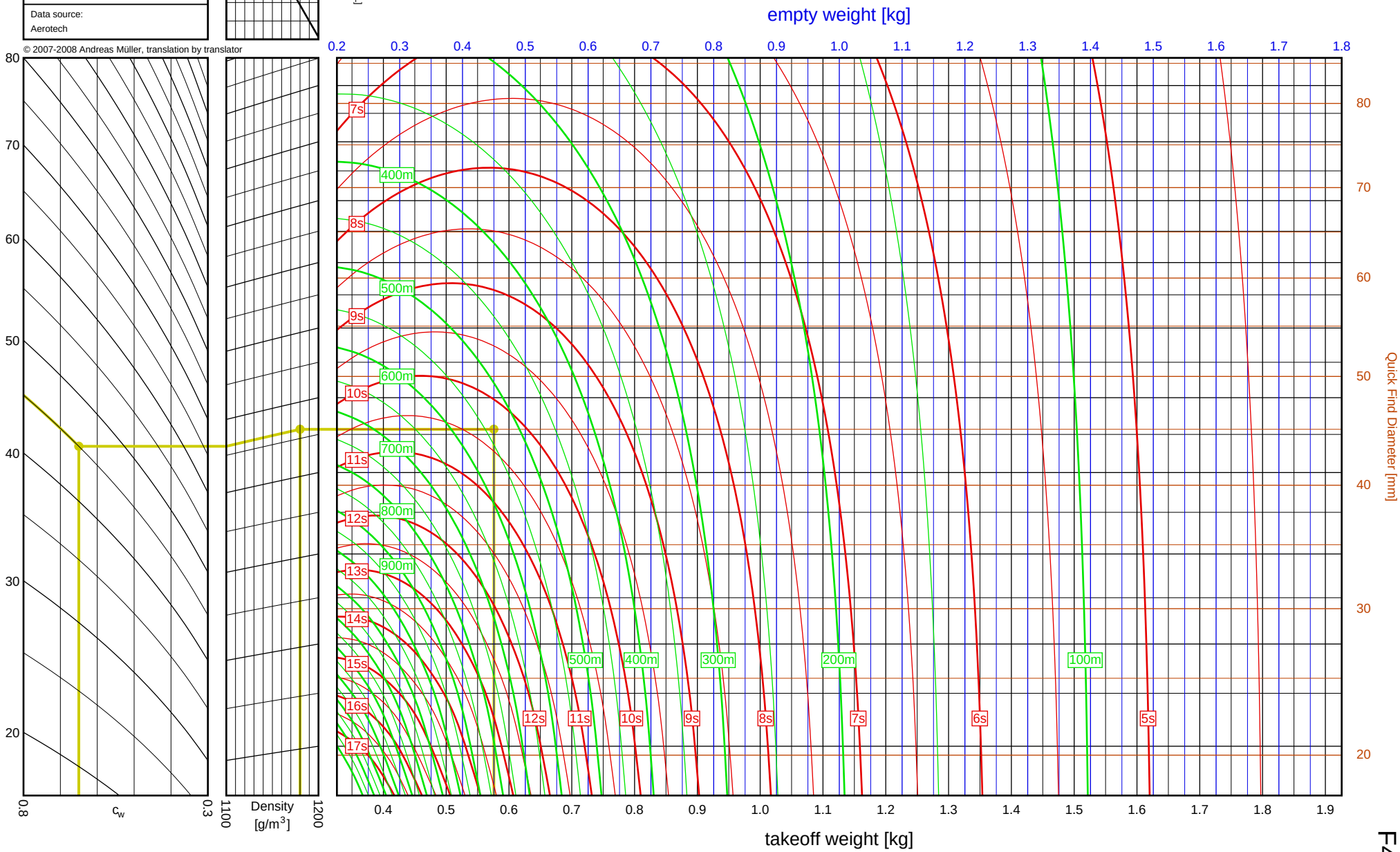
I_{tot}	=	78.1 Ns
F_{avg}	=	37.9 N
t_{burn}	=	2.06 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

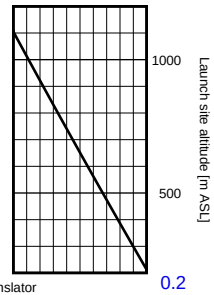
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.576kg
Results: time to apogee: 10.3s, expected altitude: 537m



Aerotech G54W

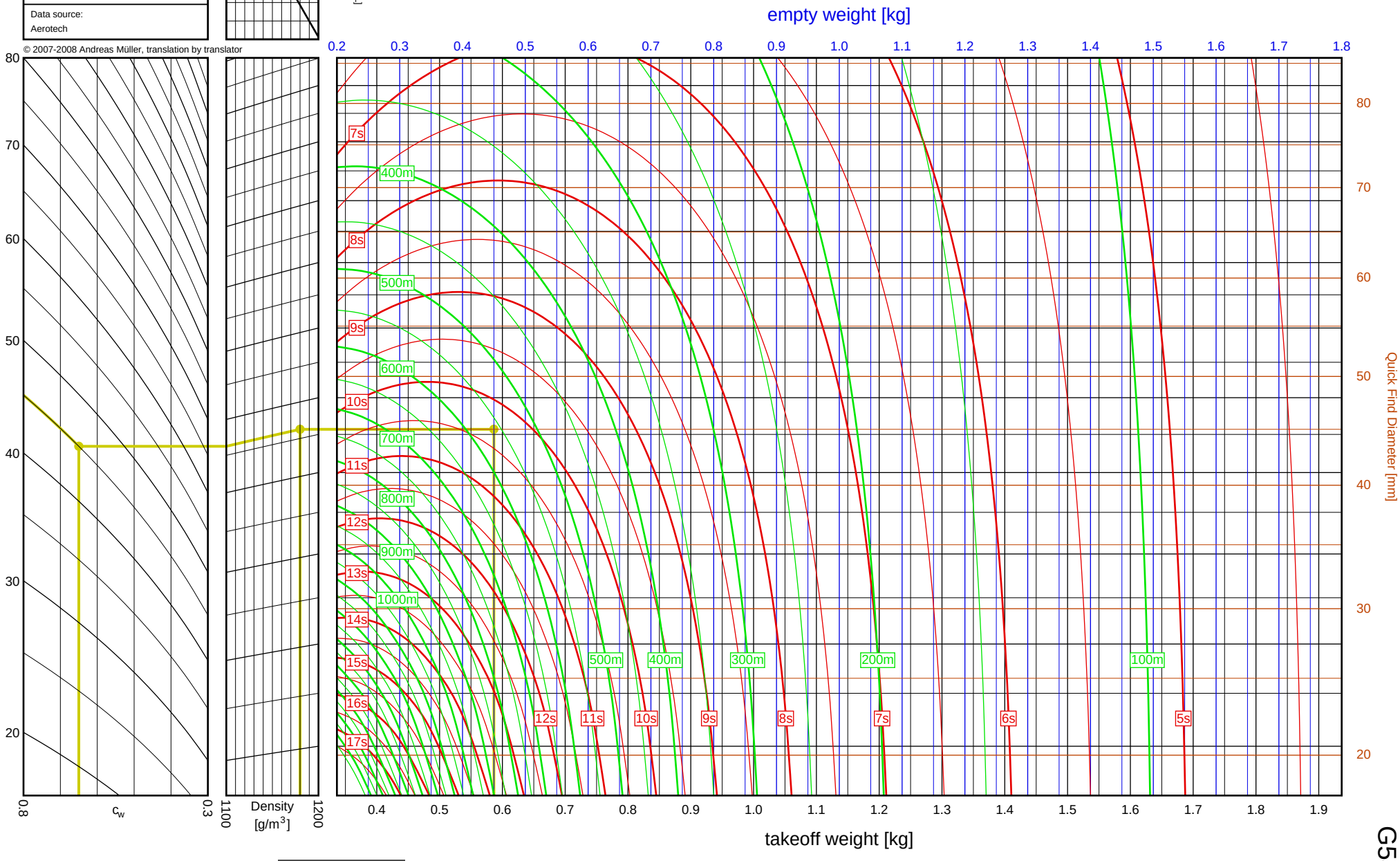
I_{tot}	=	81.1 Ns
F_{avg}	=	53.7 N
t_{burn}	=	1.51 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

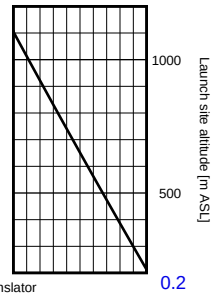
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.587kg
Results: time to apogee: 10.3s, expected altitude: 561m



Aerotech G142

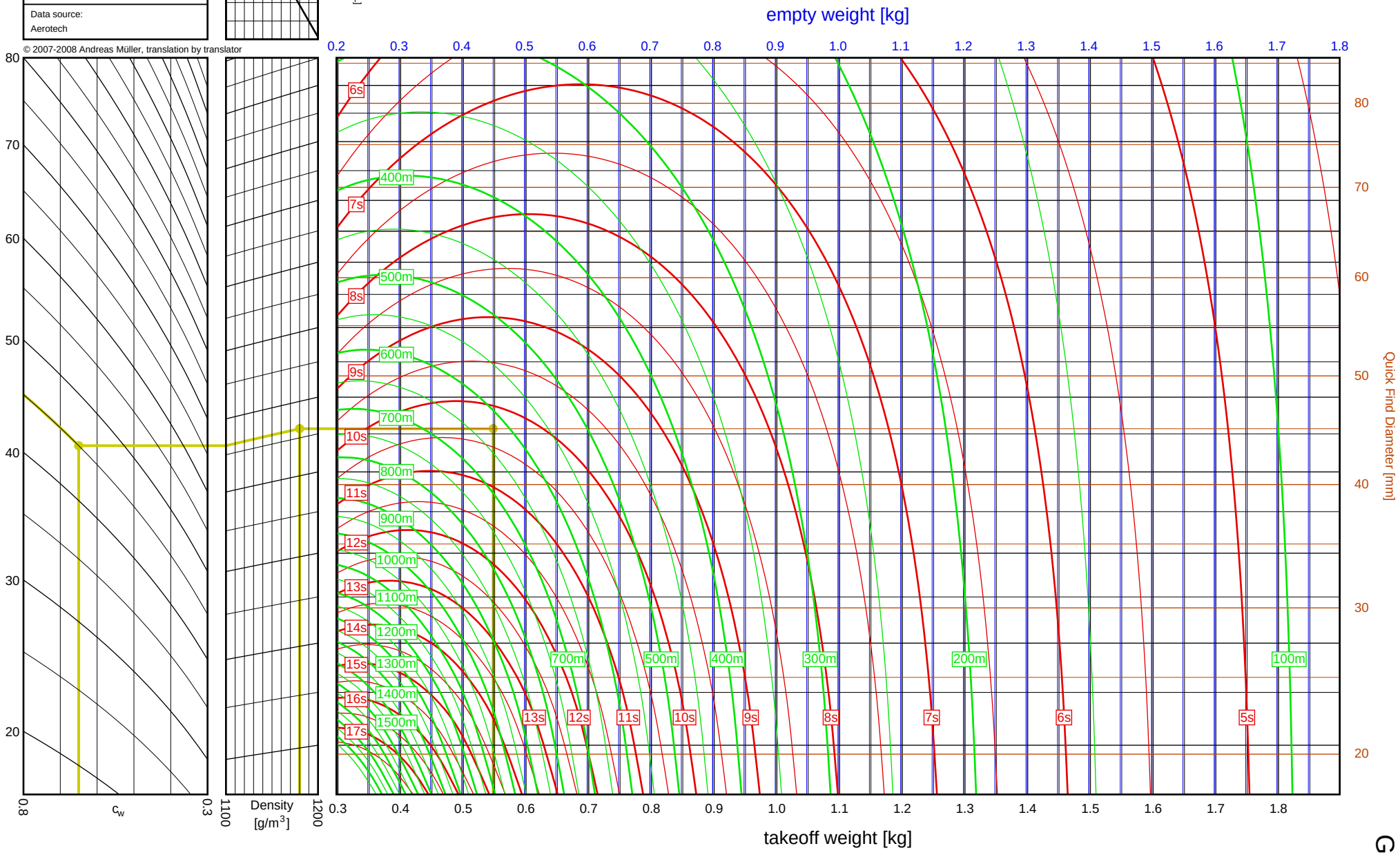
I_{tot}	=	84.6 Ns
F_{avg}	=	93.9 N
t_{burn}	=	0.90 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.548kg
Results: time to apogee: 10.3s, expected altitude: 621m

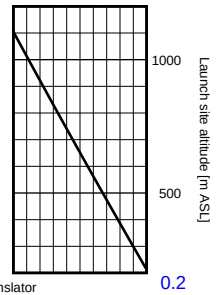


Aerotech

G38FJ

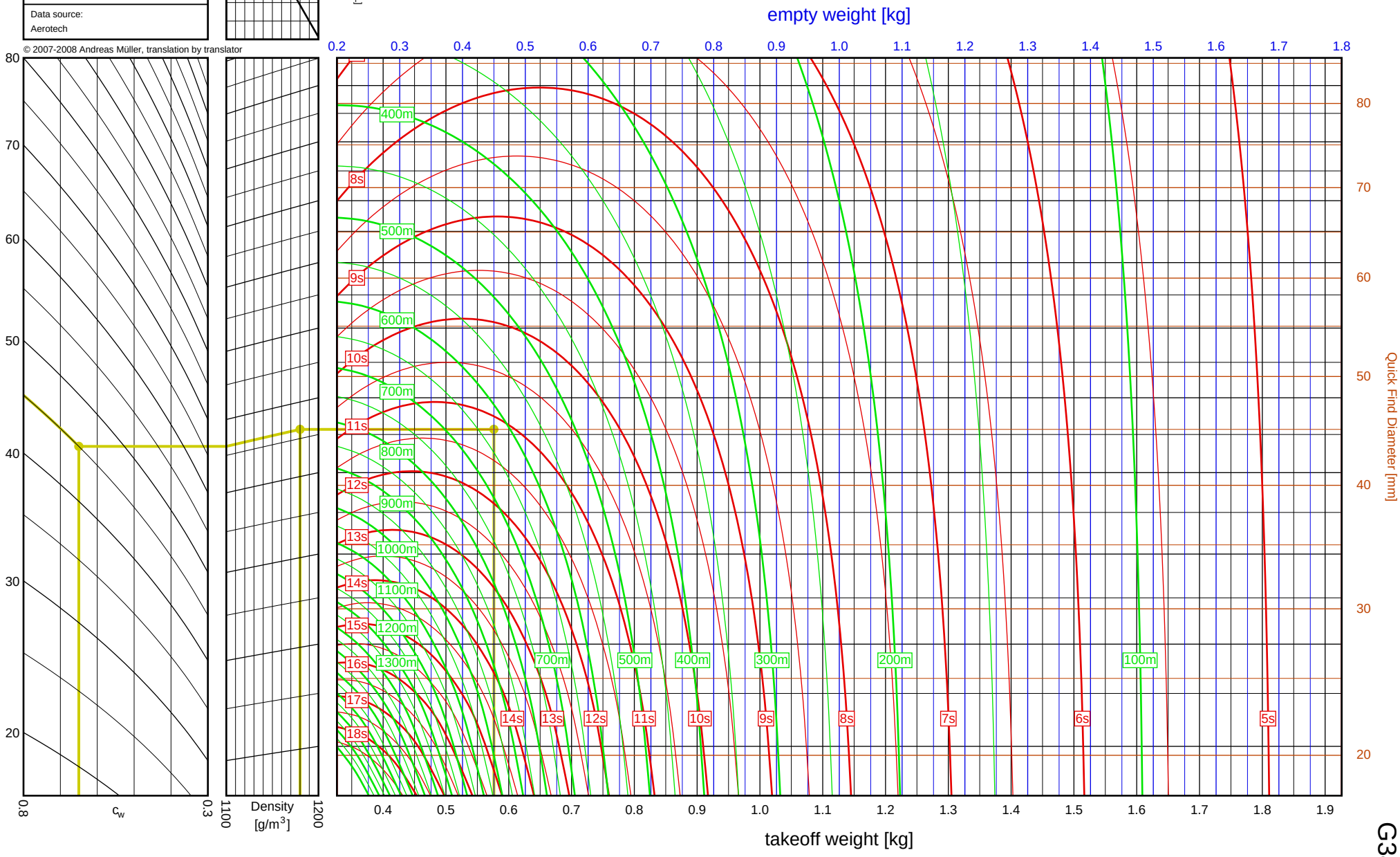
I_{tot}	=	86.8 Ns
F_{avg}	=	32.9 N
t_{burn}	=	2.64 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.576kg
Results: time to apogee: 11.1s, expected altitude: 626m

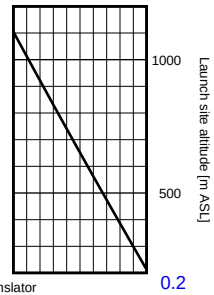


G38FJ

Aerotech G53FJ

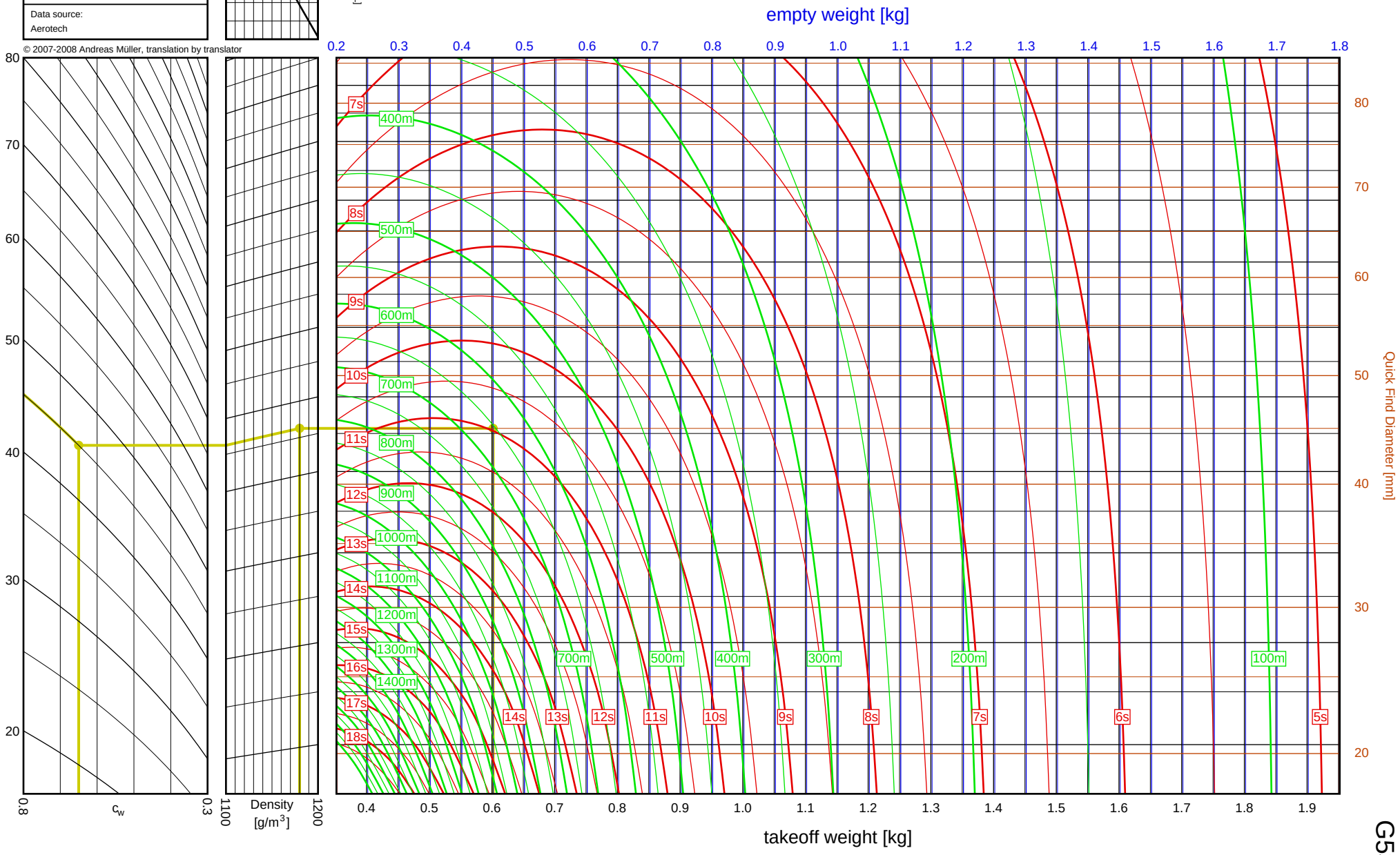
I_{tot}	=	92.1 Ns
F_{avg}	=	49.8 N
t_{burn}	=	1.85 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.602kg
Results: time to apogee: 11.0s, expected altitude: 654m

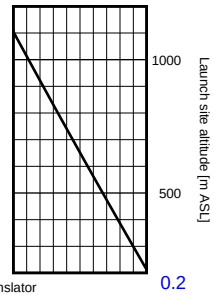


Aerotech

G33J

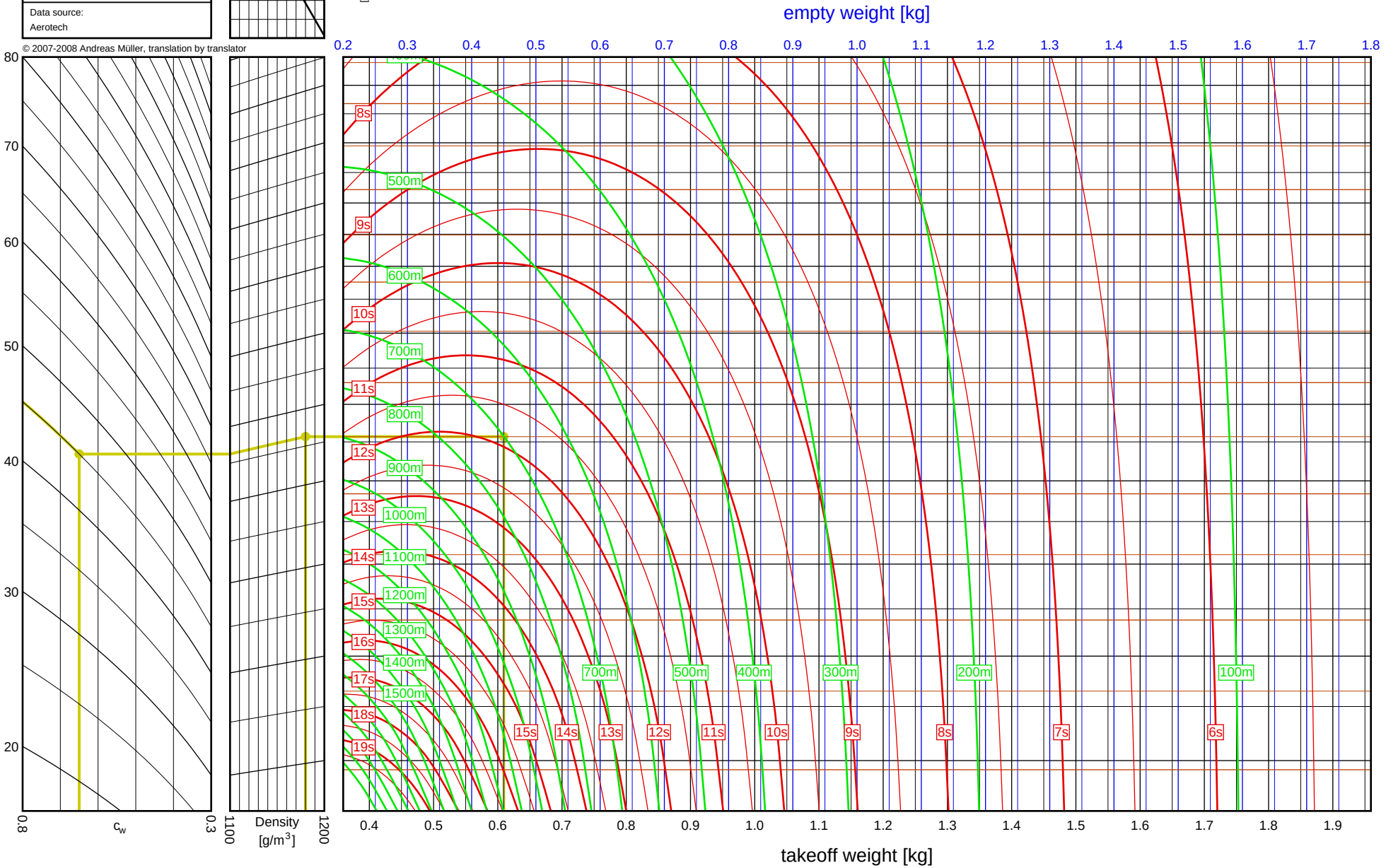
I_{tot}	=	98.4 Ns
F_{avg}	=	30.1 N
t_{burn}	=	3.27 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.609kg
Results: time to apogee: 11.9s, expected altitude: 701m

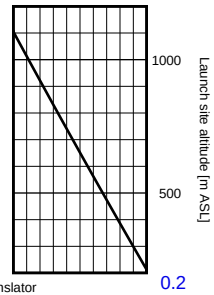


Aerotech

G40W

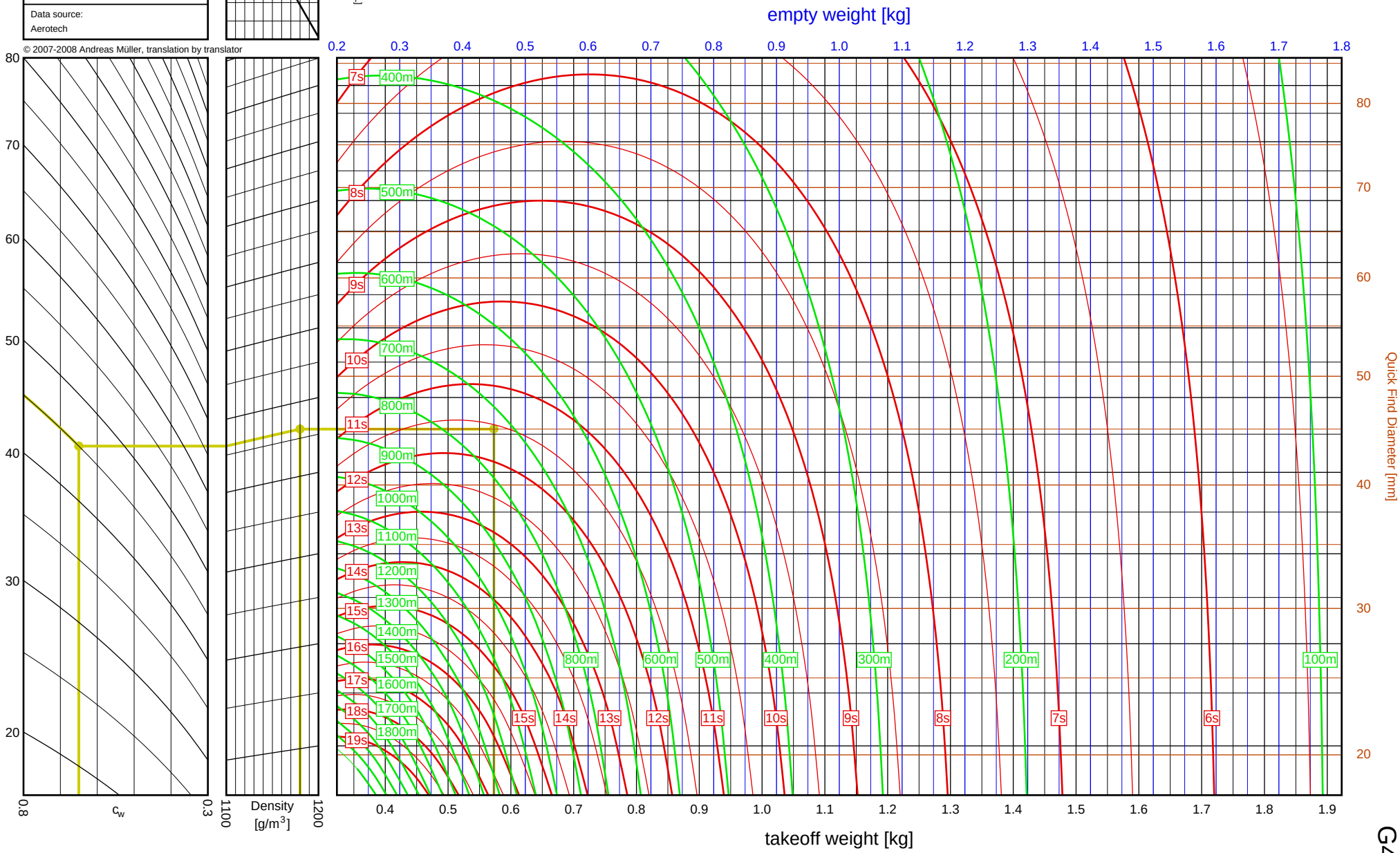
I_{tot}	=	99.0 Ns
F_{avg}	=	43.1 N
t_{burn}	=	2.30 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

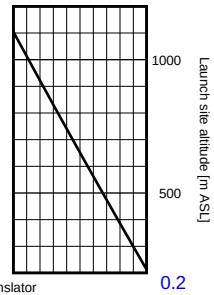
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.573kg
Results: time to apogee: 11.6s, expected altitude: 731m



Aerotech G35EJ

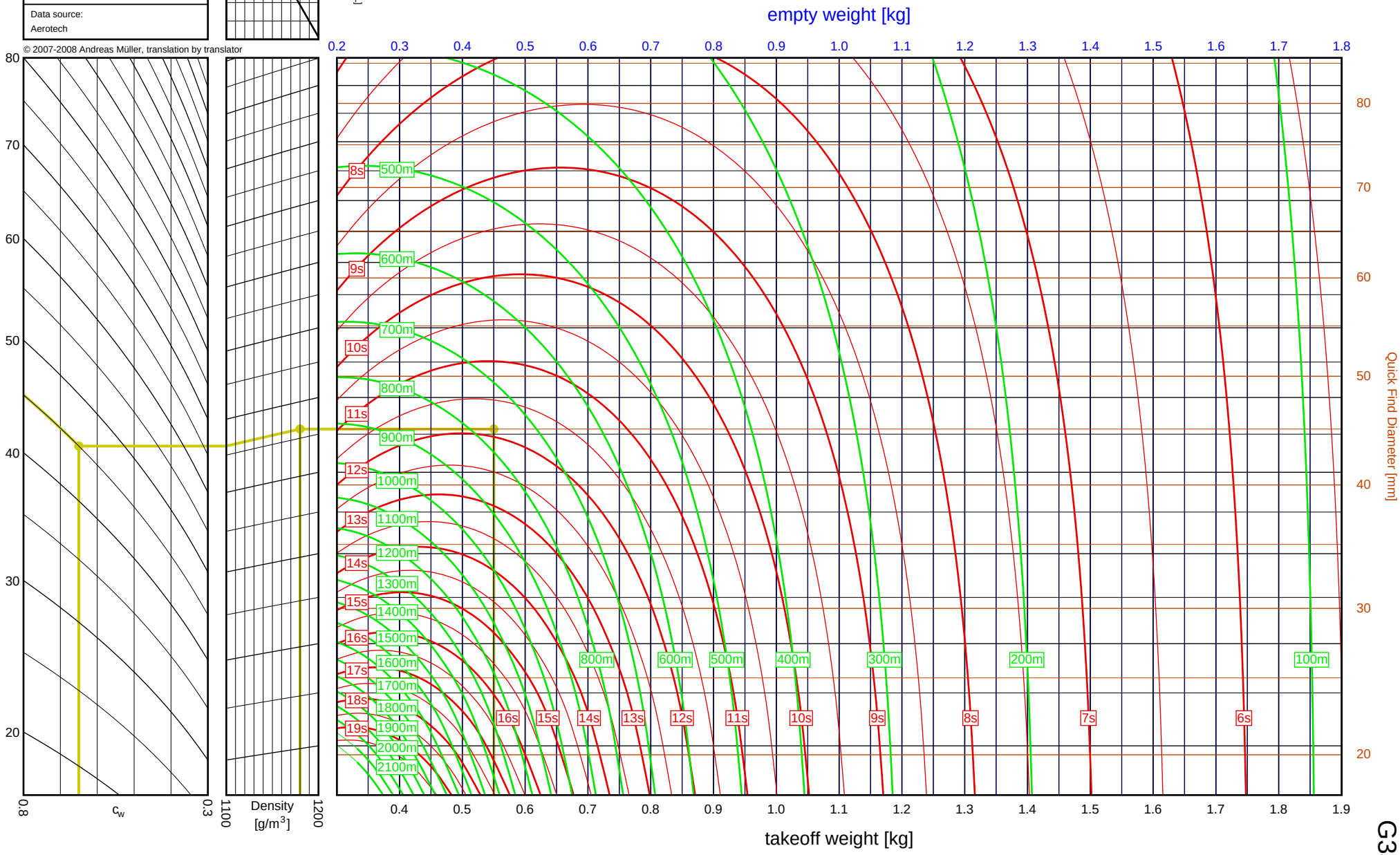
I_{tot}	=	101.0 Ns
F_{avg}	=	34.7 N
t_{burn}	=	2.91 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

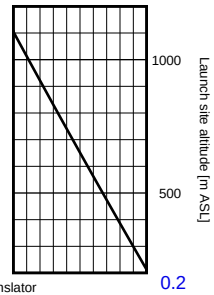
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.551kg
Results: time to apogee: 11.9s, expected altitude: 766m



Aerotech G77R

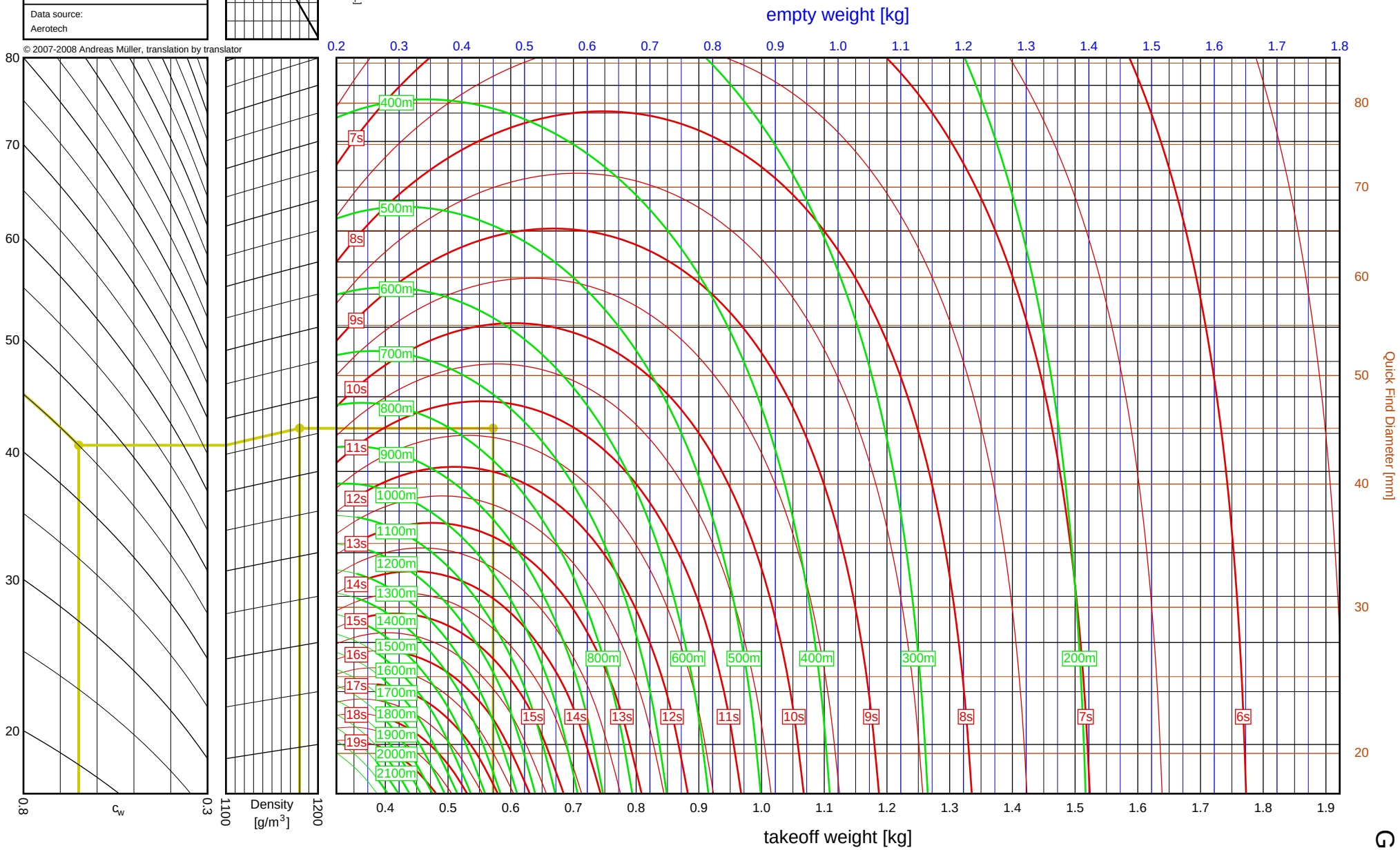
I_{tot}	=	101.7 Ns
F_{avg}	=	79.6 N
t_{burn}	=	1.28 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

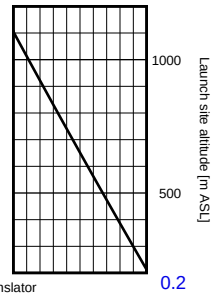
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.572kg
Results: time to apogee: 11.4s, expected altitude: 750m



Aerotech G79W

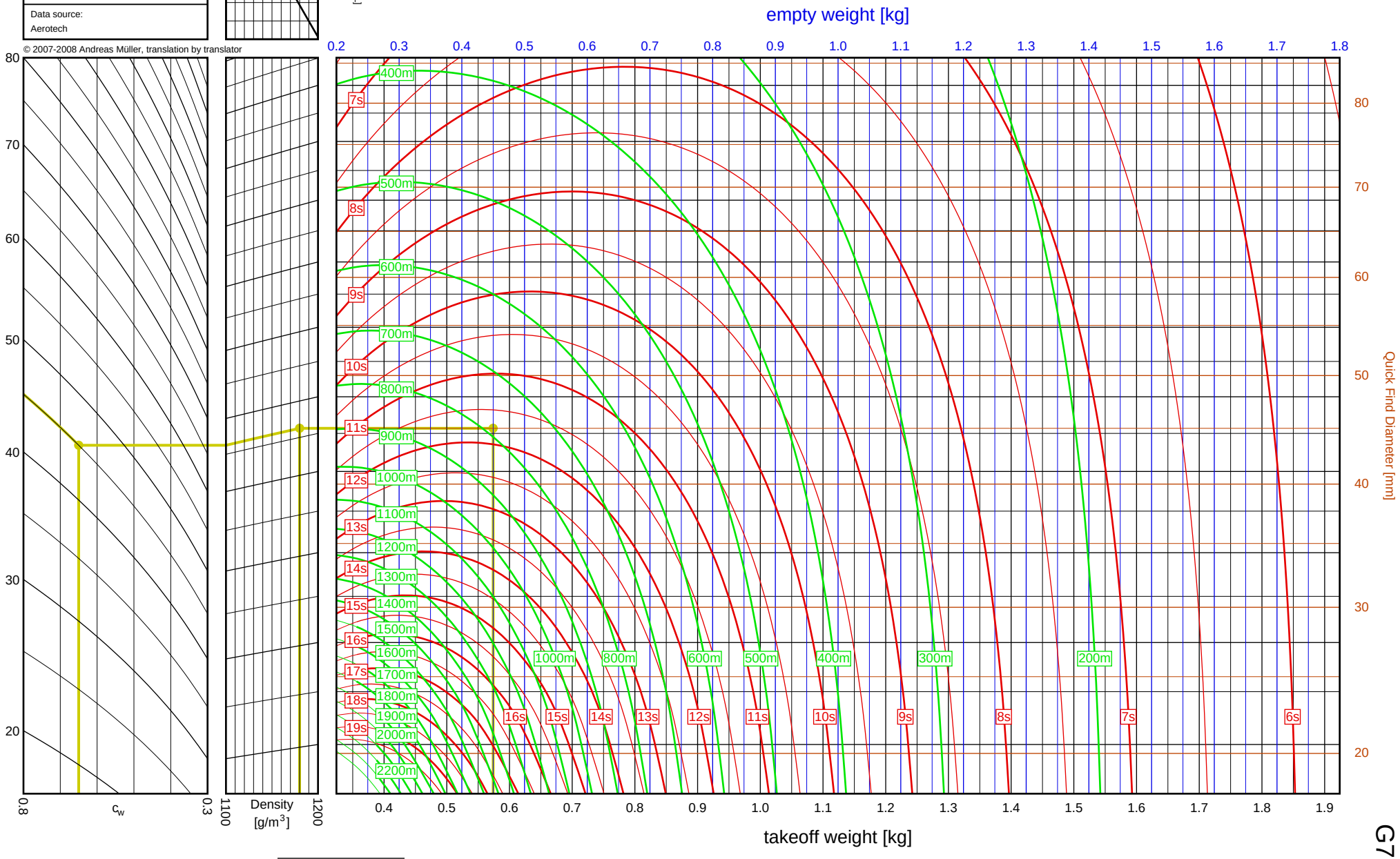
I_{tot}	=	106.4 Ns
F_{avg}	=	55.2 N
t_{burn}	=	1.93 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

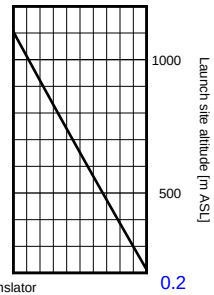
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.574kg
Results: time to apogee: 11.8s, expected altitude: 787m



Aerotech G71R

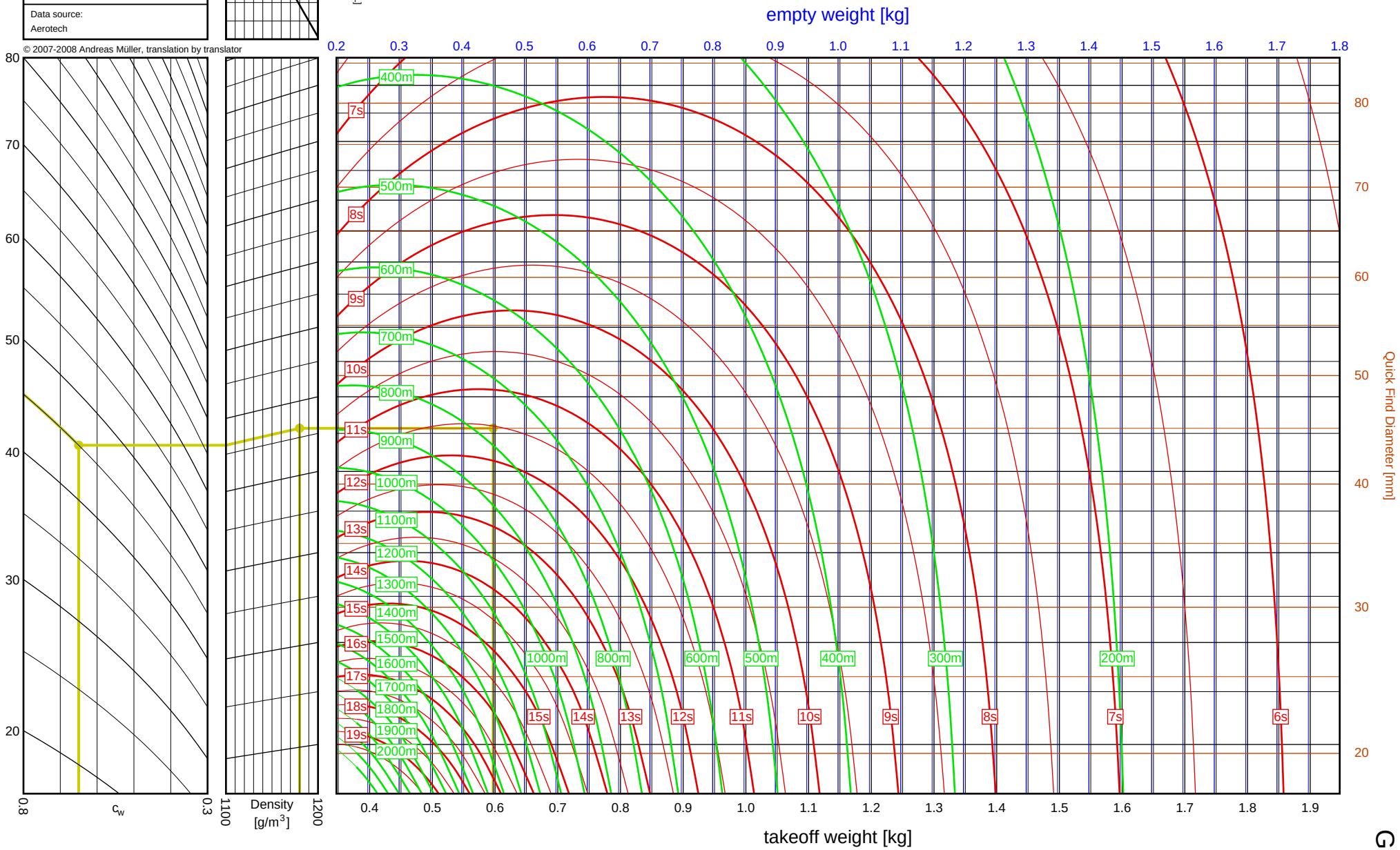
I_{tot}	=	106.9 Ns
F_{avg}	=	62.9 N
t_{burn}	=	1.70 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

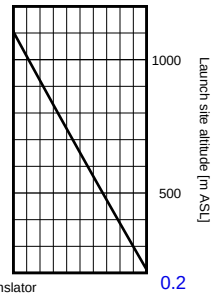
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.597kg
Results: time to apogee: 11.5s, expected altitude: 774m



Aerotech G67R

I_{tot}	=	109.5 Ns
F_{avg}	=	68.5 N
t_{burn}	=	1.60 s
d	=	38 mm

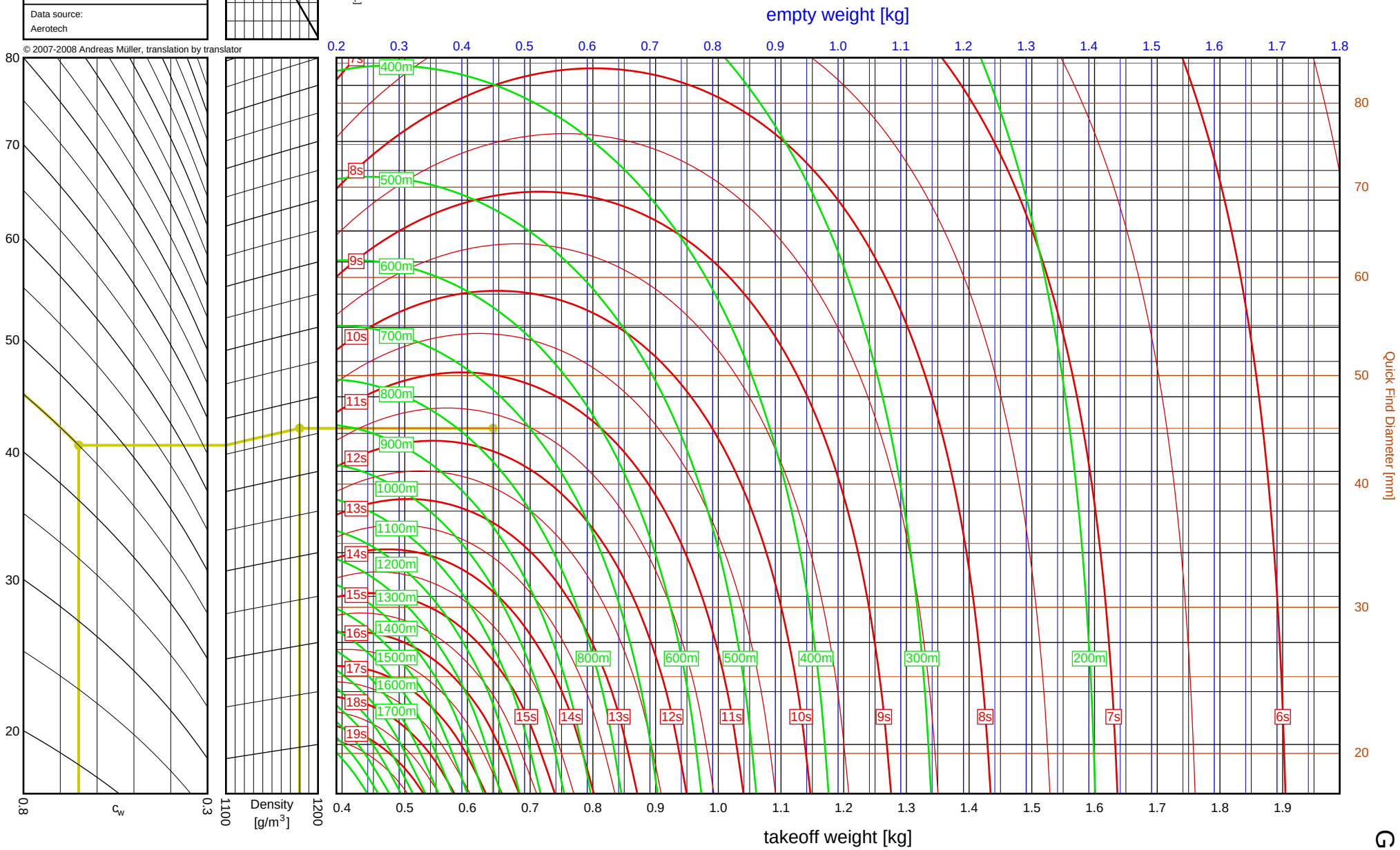
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.641kg

Results: time to apogee: 11.7s, expected altitude: 752m

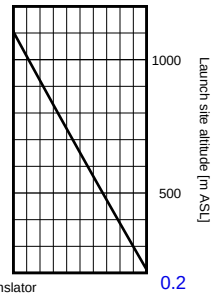


G67R

Aerotech G78G

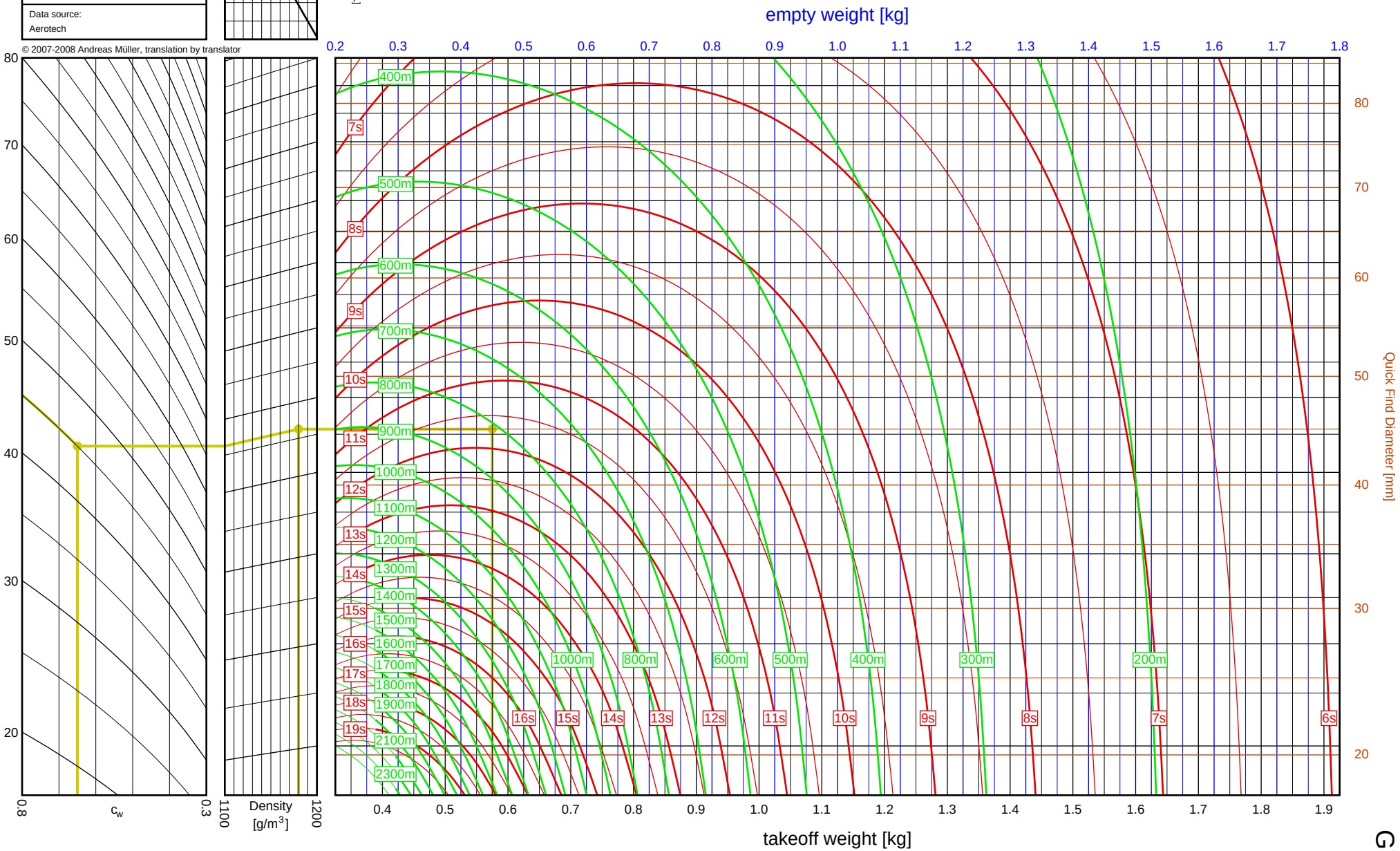
I_{tot}	=	109.8 Ns
F_{avg}	=	74.6 N
t_{burn}	=	1.47 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

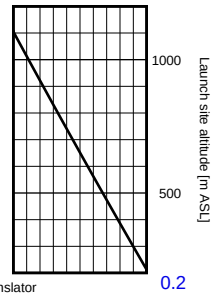
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.575kg
Results: time to apogee: 11.7s, expected altitude: 811m



Aerotech G61W

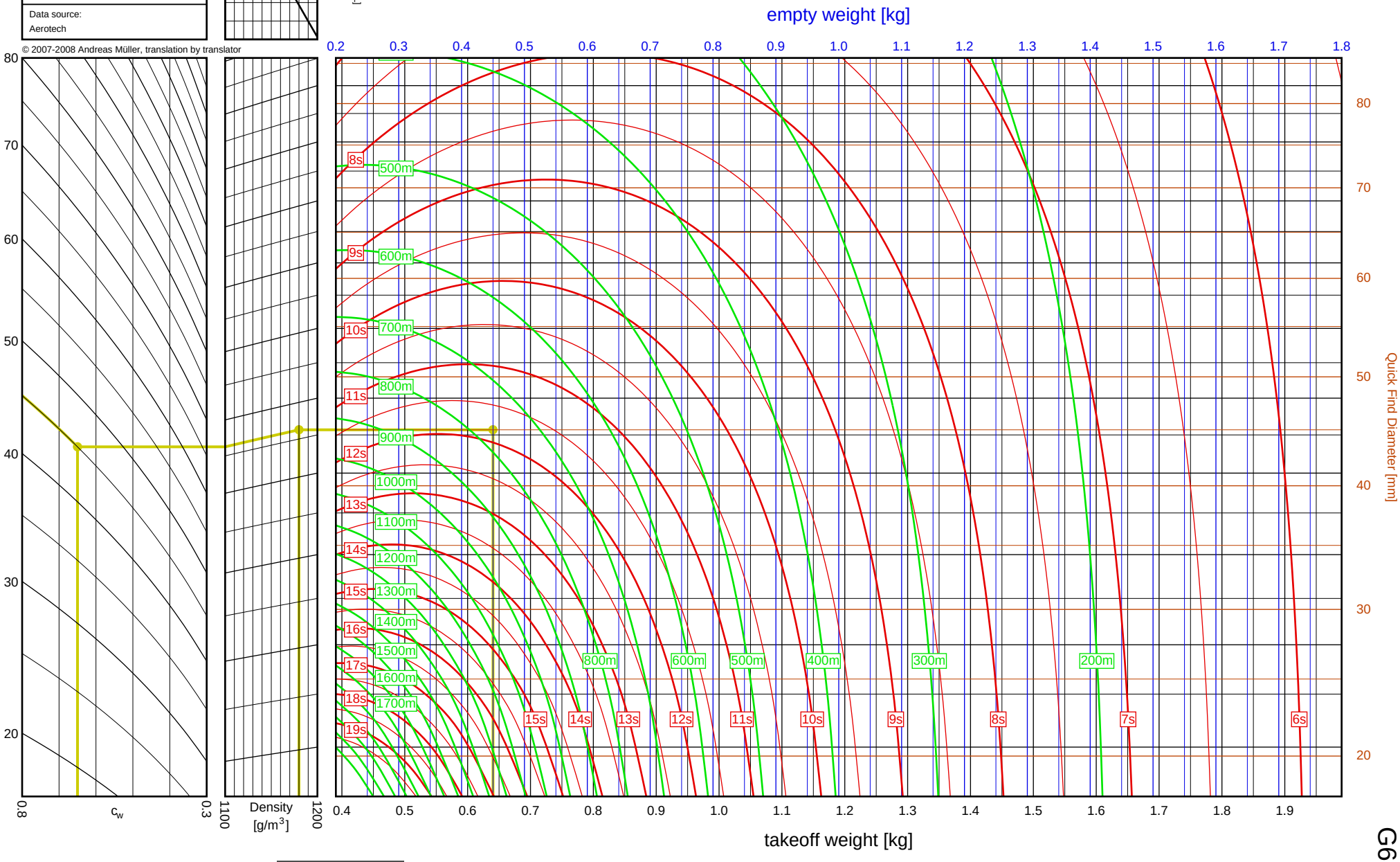
I_{tot}	=	110.8 Ns
F_{avg}	=	54.3 N
t_{burn}	=	2.04 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.640kg
Results: time to apogee: 11.8s, expected altitude: 768m

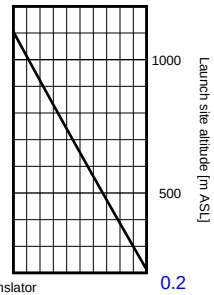


Aerotech

G339N

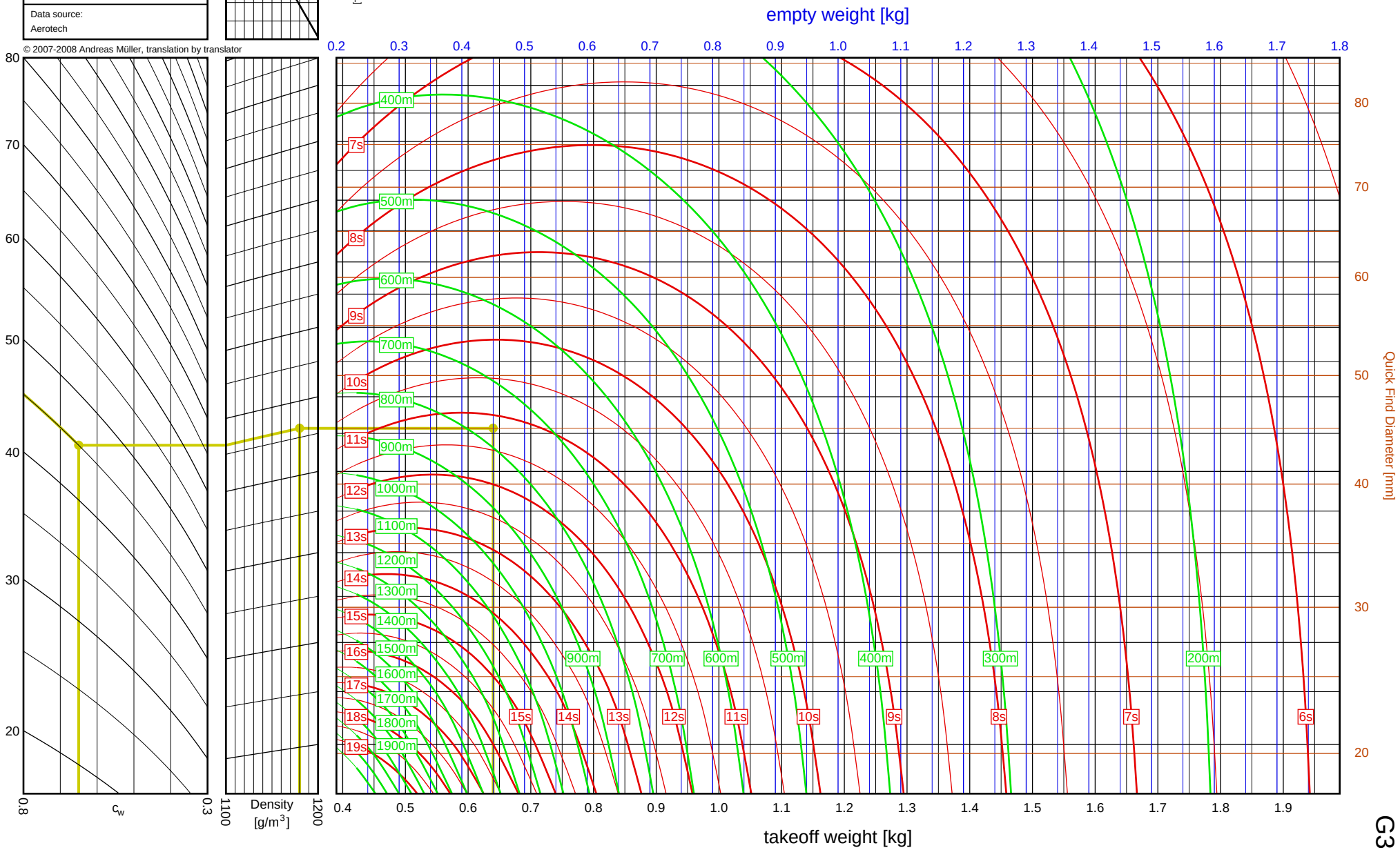
I_{tot}	=	112.1 Ns
F_{avg}	=	312.2 N
t_{burn}	=	0.36 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.640kg
Results: time to apogee: 11.2s, expected altitude: 770m



G339N

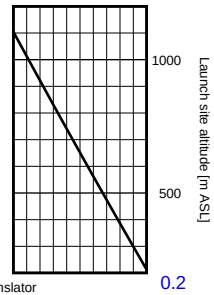
F-G

G339N

Aerotech G76G

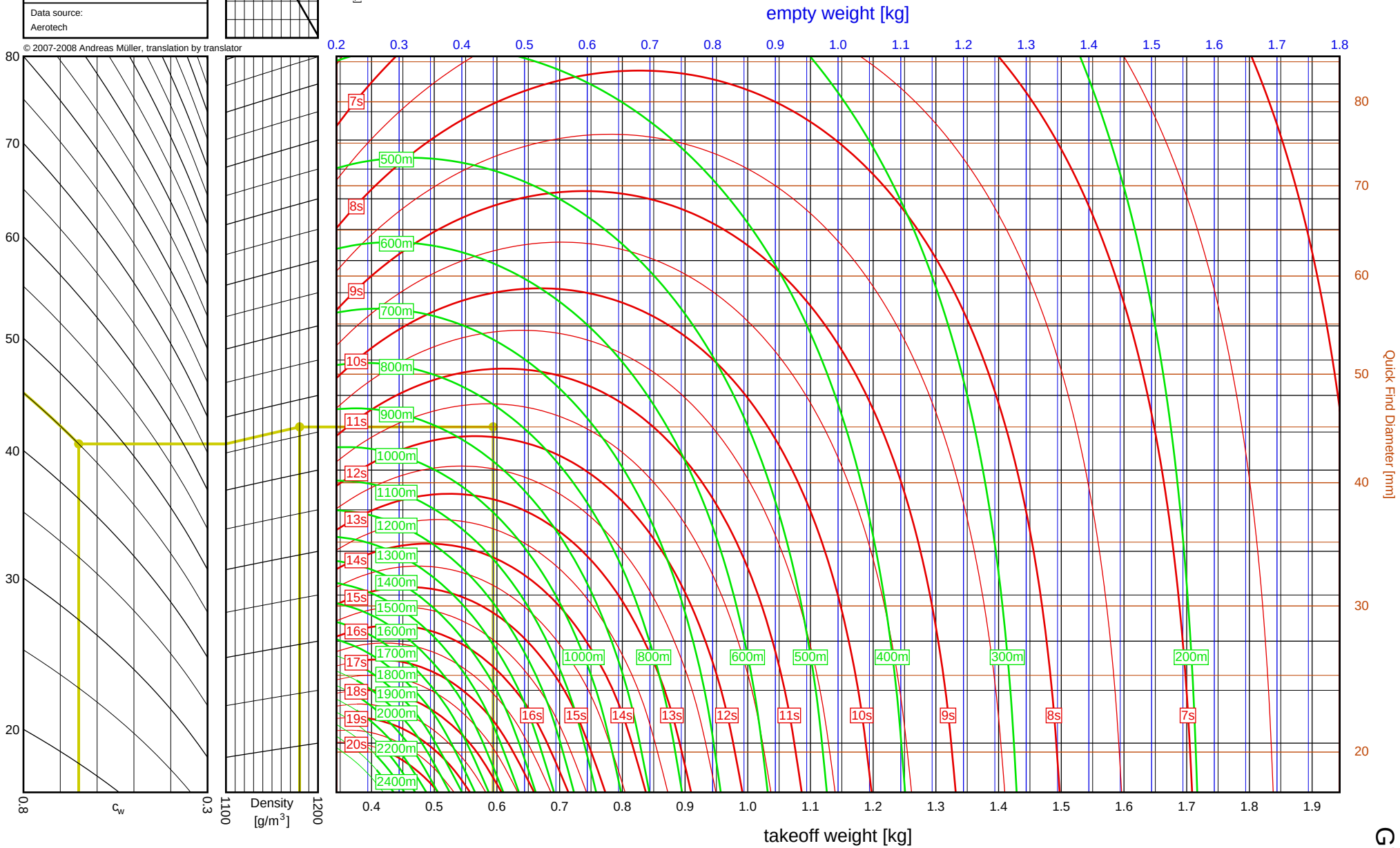
I_{tot}	=	114.5 Ns
F_{avg}	=	57.2 N
t_{burn}	=	2.00 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

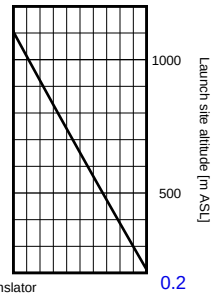
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.594kg
Results: time to apogee: 11.9s, expected altitude: 839m



Aerotech G64W

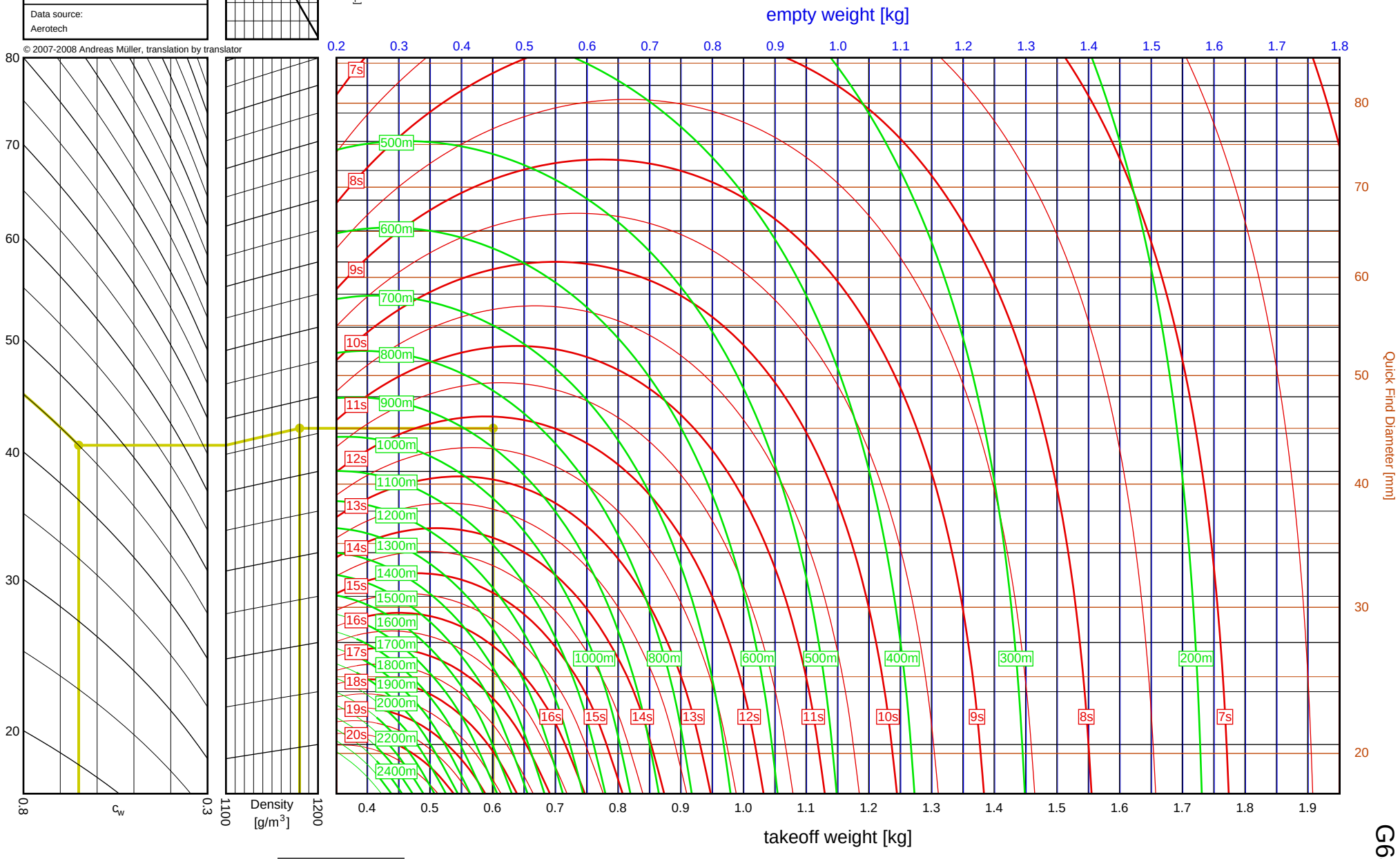
I_{tot}	=	118.8 Ns
F_{avg}	=	56.8 N
t_{burn}	=	2.09 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

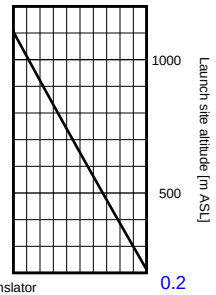
Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.601kg
Results: time to apogee: 12.2s, expected altitude: 865m



Aerotech G80T

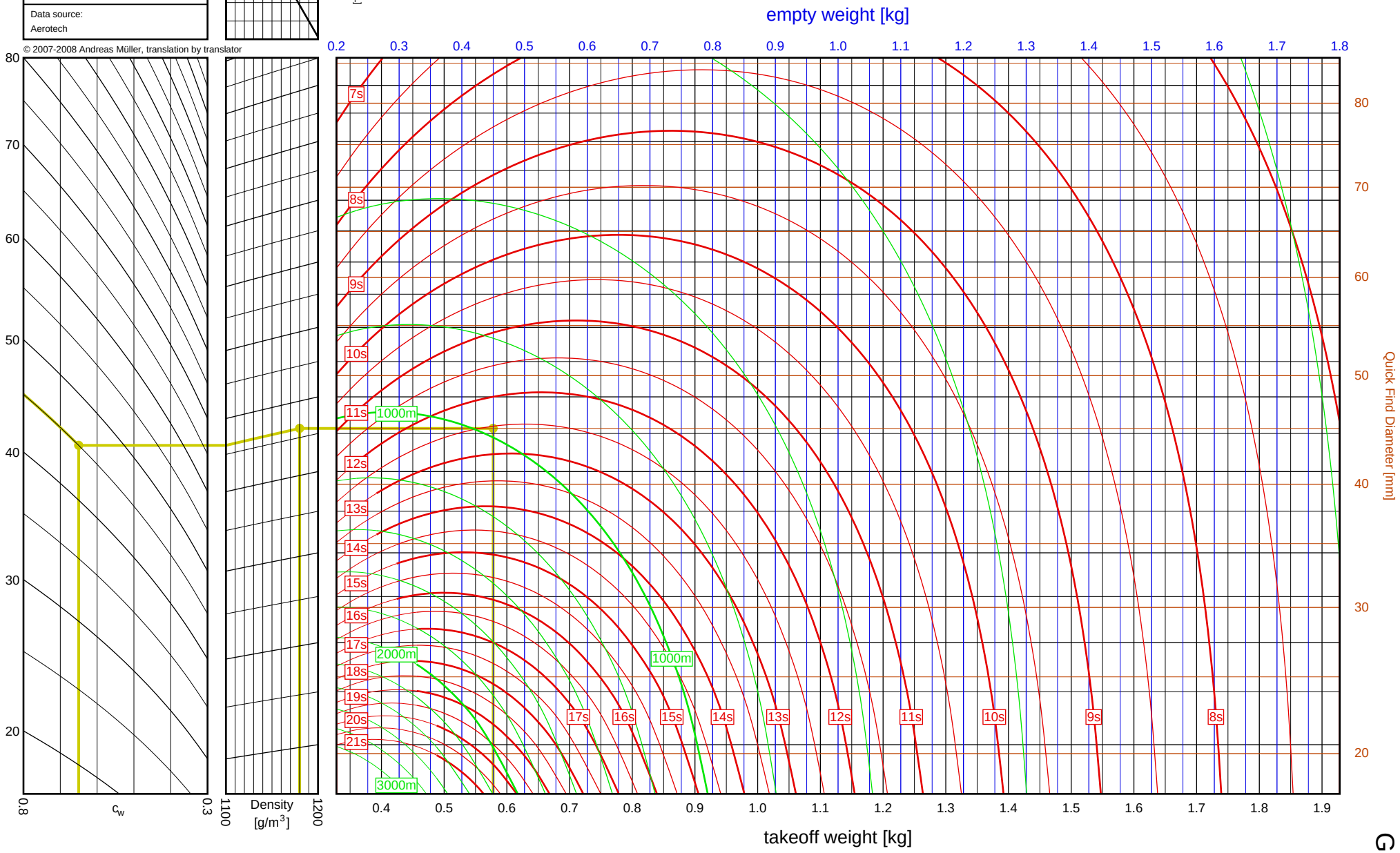
I_{tot}	=	133.2 Ns
F_{avg}	=	73.7 N
t_{burn}	=	1.81 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.578kg
Results: time to apogee: 12.5s, expected altitude: 980m

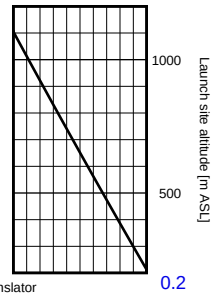


Aerotech

G69N

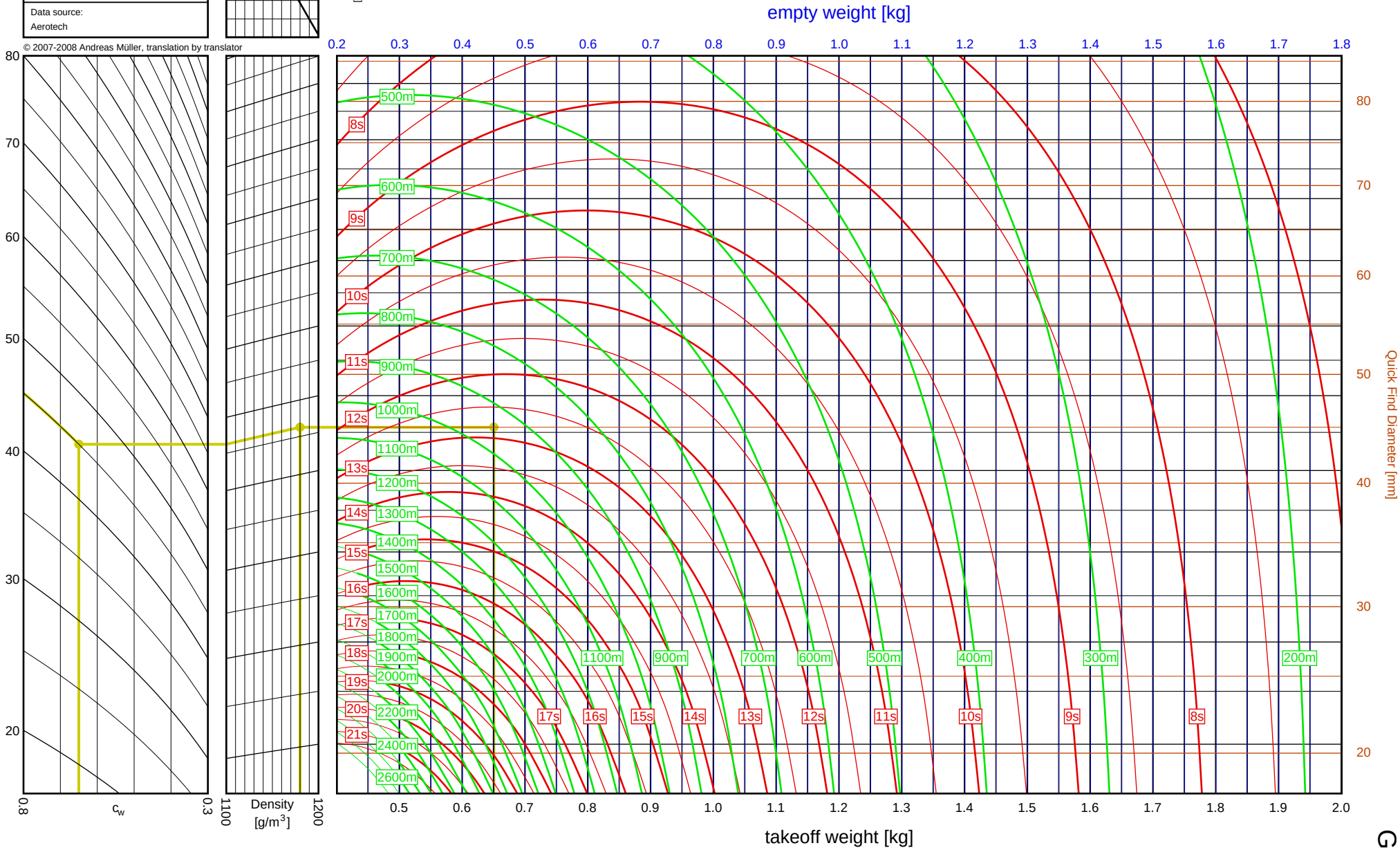
I_{tot}	=	136.3 Ns
F_{avg}	=	68.2 N
t_{burn}	=	2.00 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.651kg
Results: time to apogee: 12.8s, expected altitude: 947m

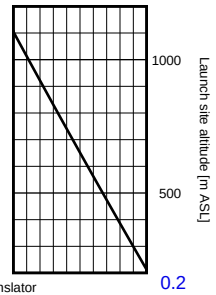


G69N

Aerotech G75J

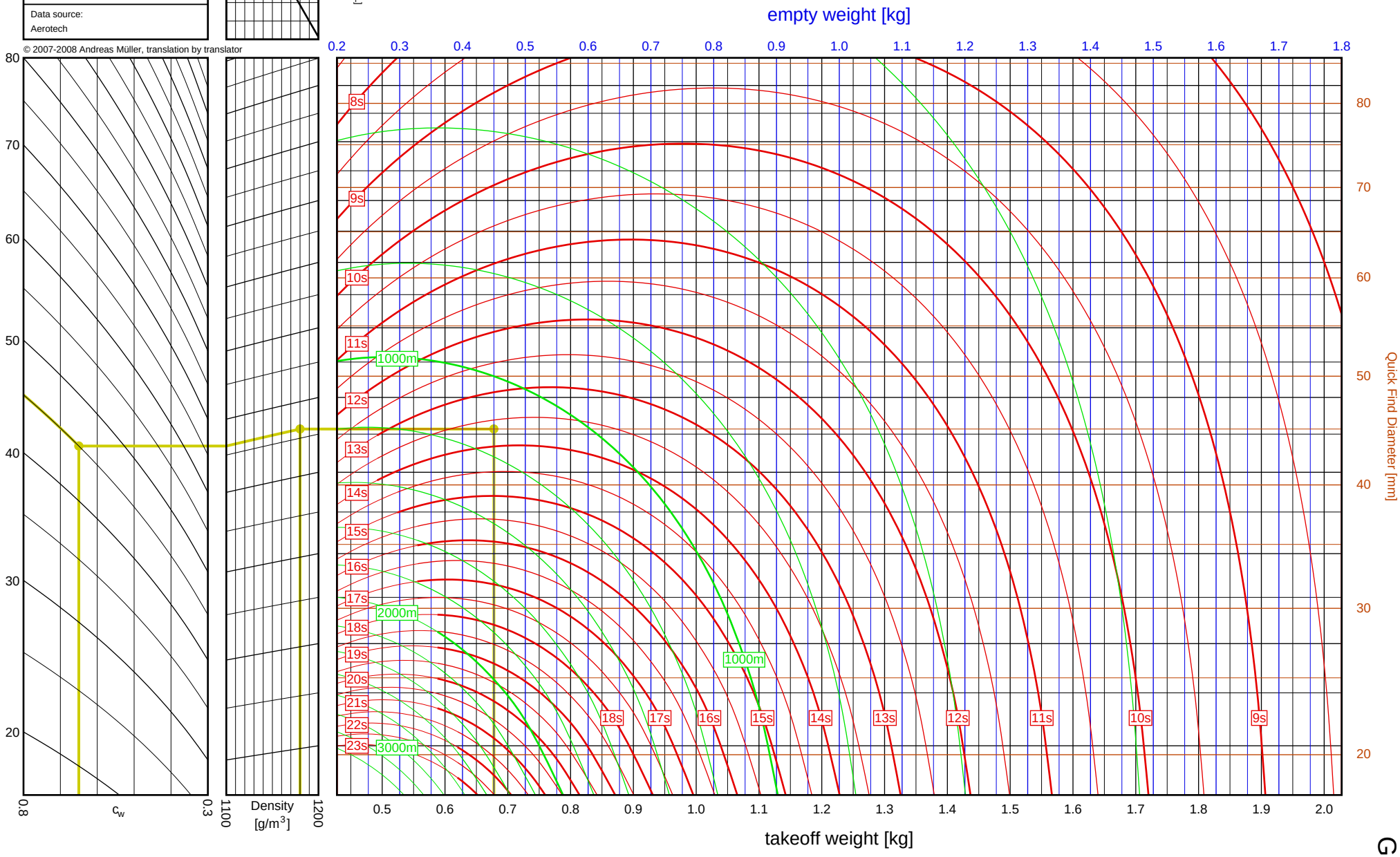
I_{tot}	=	161.4 Ns
F_{avg}	=	73.4 N
t_{burn}	=	2.20 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.678kg
Results: time to apogee: 13.7s, expected altitude: 1127m

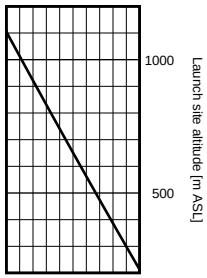


G75J

Aerotech H238T

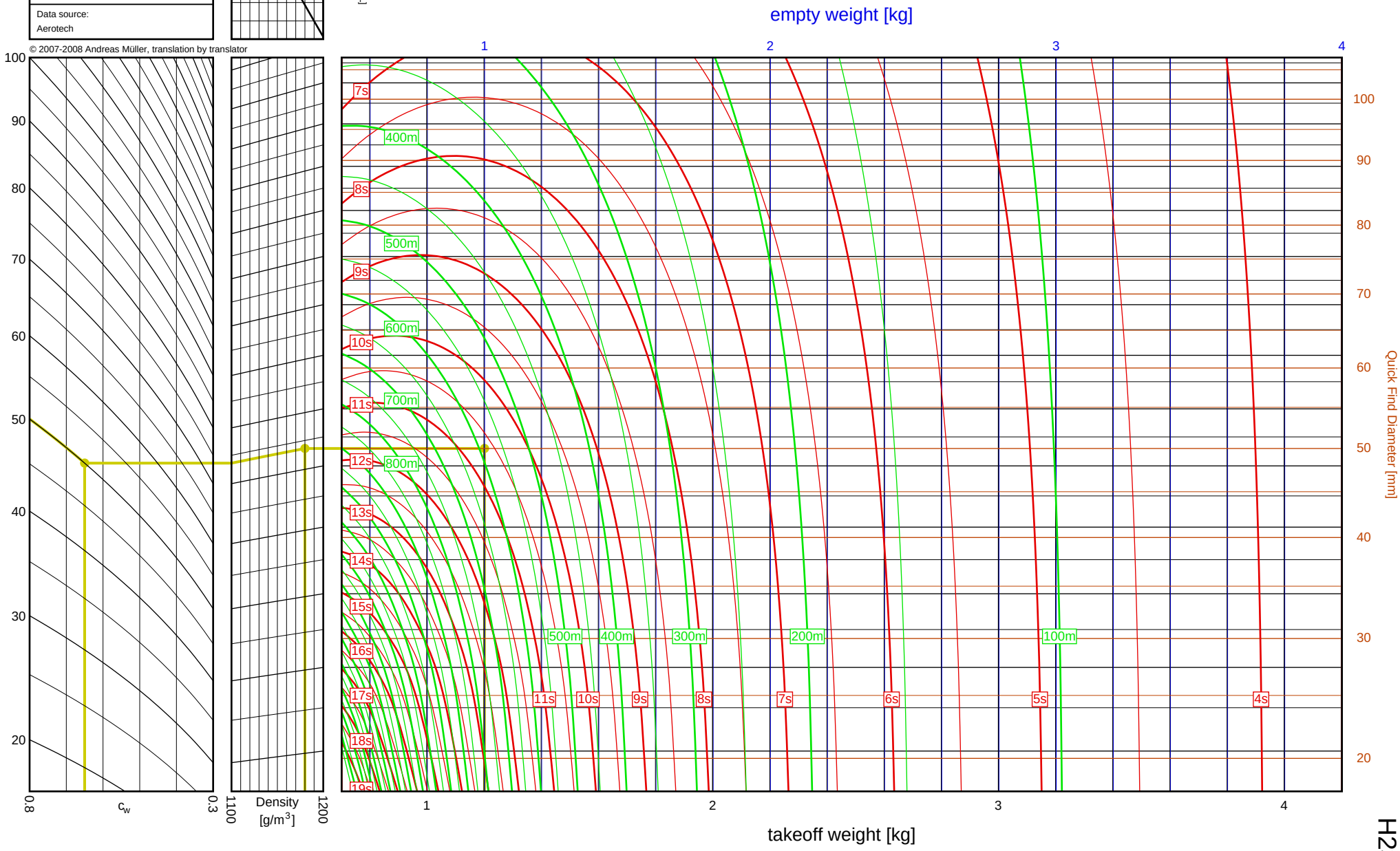
I_{tot}	=	151.2 Ns
F_{avg}	=	189.1 N
t_{burn}	=	0.80 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.202kg
Results: time to apogee: 10.6s, expected altitude: 589m



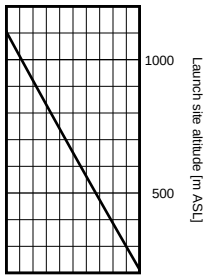
H238T

H238T

Aerotech H128W

I_{tot}	=	155.8 Ns
F_{avg}	=	103.8 N
t_{burn}	=	1.50 s
d	=	29 mm

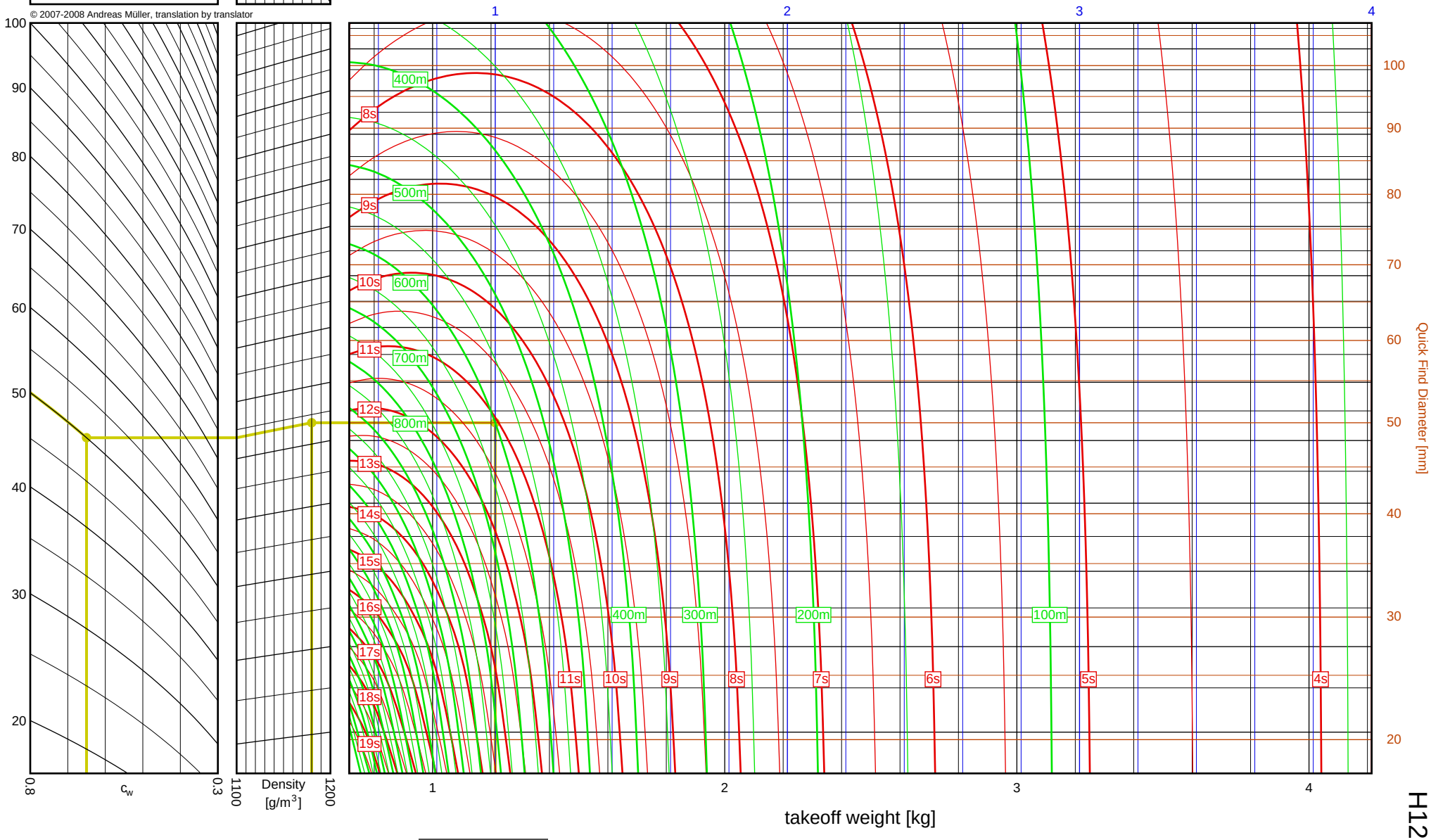
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.215kg
Results: time to apogee: 11.1s, expected altitude: 600m

empty weight [kg]



H128W

H128W

H-I

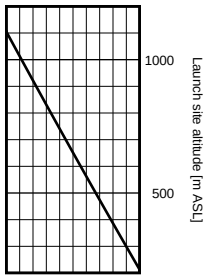
4

4-2

Aerotech H165R

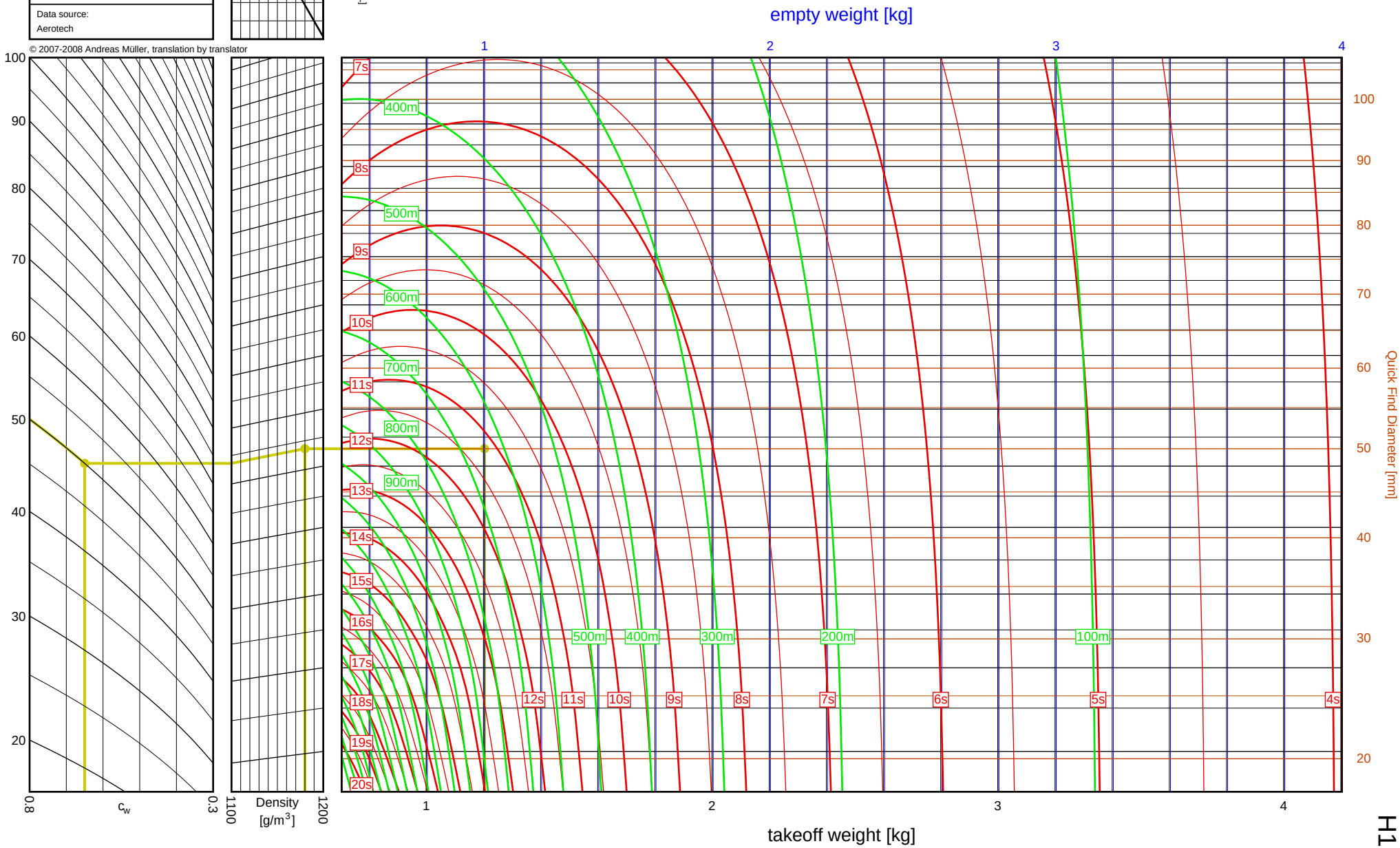
I_{tot}	=	160.9 Ns
F_{avg}	=	153.2 N
t_{burn}	=	1.05 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

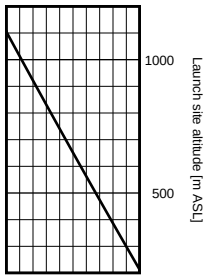
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.204kg
Results: time to apogee: 11.2s, expected altitude: 644m



Aerotech H55W

I_{tot}	=	161.2 Ns
F_{avg}	=	58.7 N
t_{burn}	=	2.75 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.188kg
Results: time to apogee: 11.6s, expected altitude: 638m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

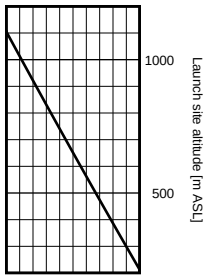
H55W

H55W

Aerotech H73J

I_{tot}	=	162.7 Ns
F_{avg}	=	46.5 N
t_{burn}	=	3.50 s
d	=	38 mm

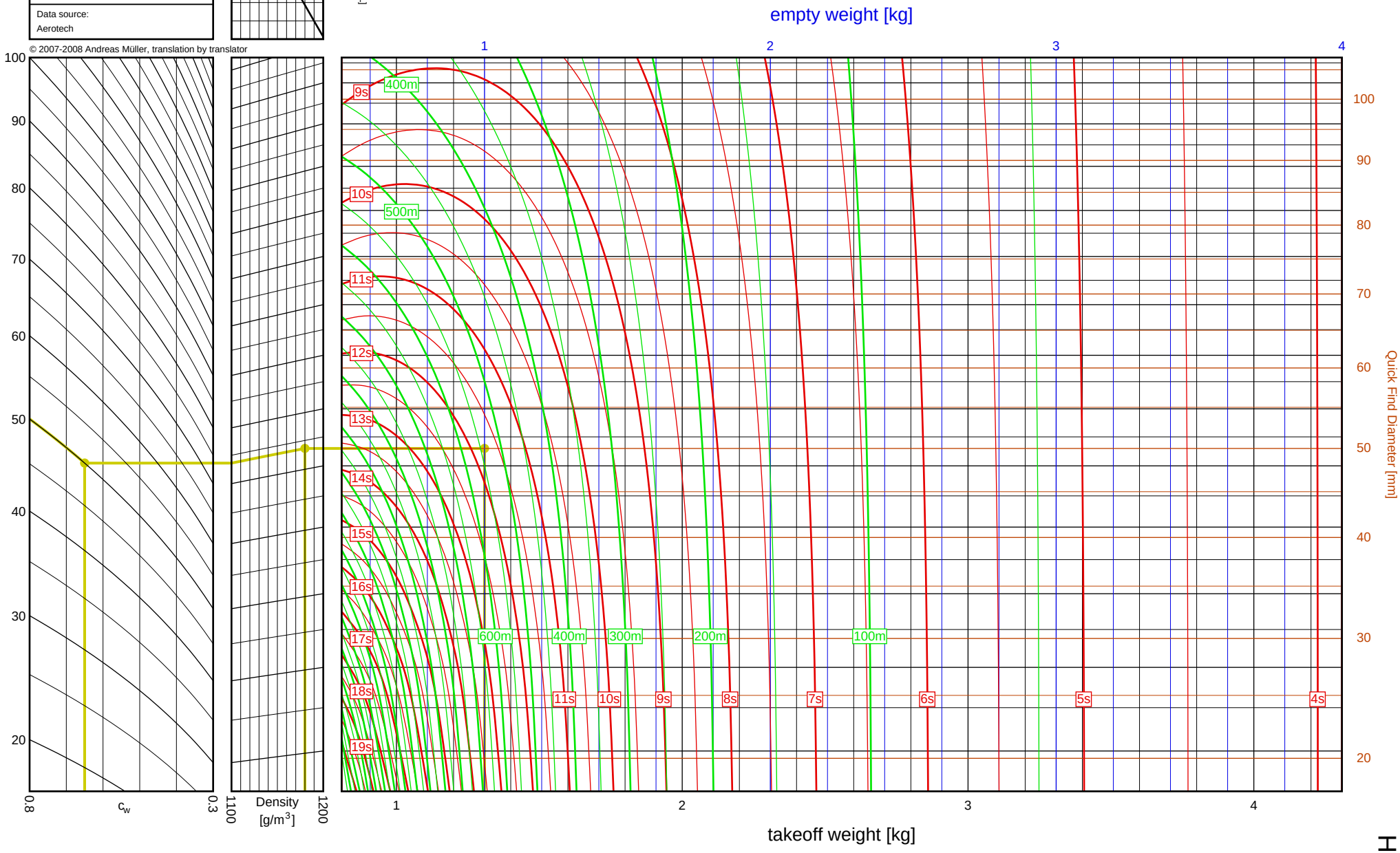
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.308kg

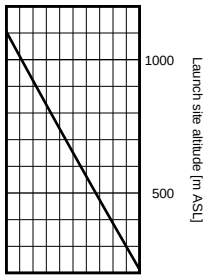
Results: time to apogee: 11.8s, expected altitude: 540m



Aerotech H97J

I_{tot}	=	179.4 Ns
F_{avg}	=	112.1 N
t_{burn}	=	1.60 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.282kg
Results: time to apogee: 12.0s, expected altitude: 712m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

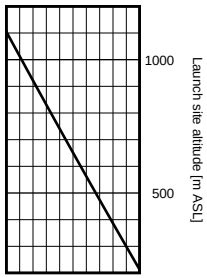
Density [g/m^3]

H97J

Aerotech H180W

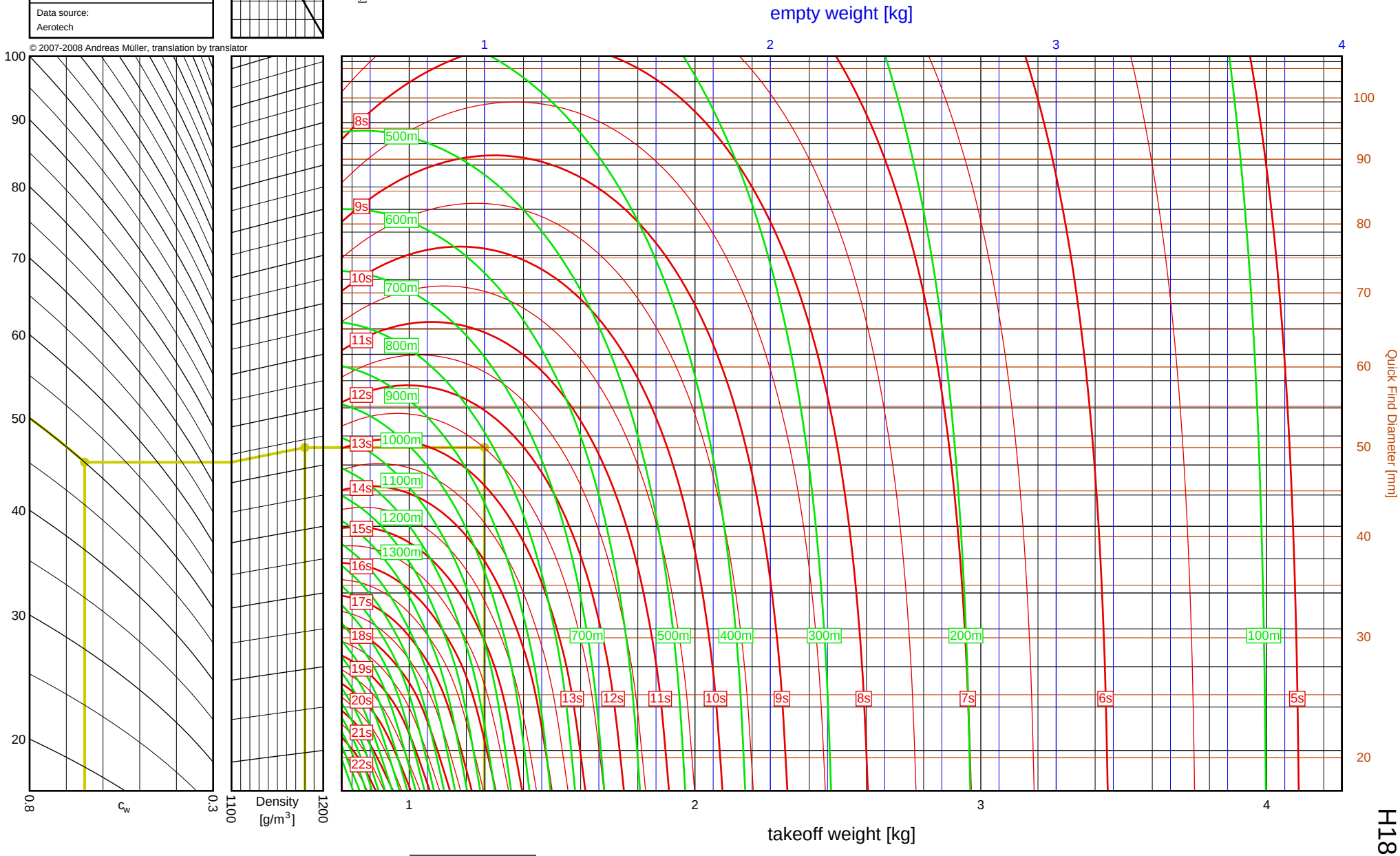
I_{tot}	=	196.8 Ns
F_{avg}	=	140.5 N
t_{burn}	=	1.40 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.264kg
Results: time to apogee: 12.5s, expected altitude: 822m



H180W

H-I 4

H180W

Aerotech H123W

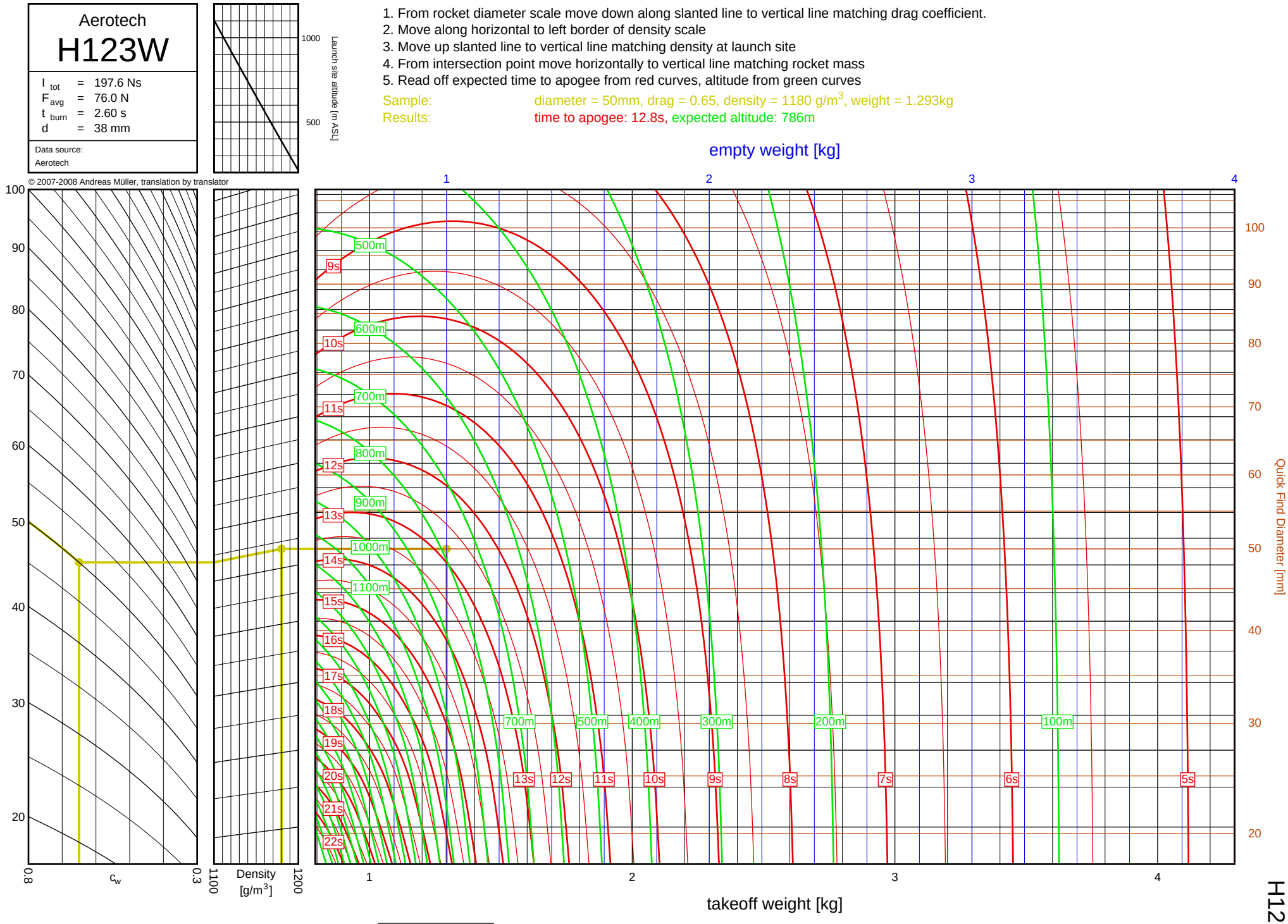
I_{tot}	=	197.6 Ns
F_{avg}	=	76.0 N
t_{burn}	=	2.60 s
d	=	38 mm

Data source: Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.293kg

Results: time to apogee: 12.8s, expected altitude: 786m



H123W

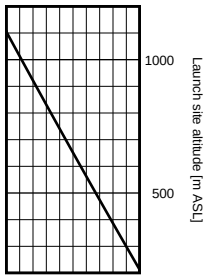
H123W

Aerotech

H210R

I_{tot}	=	210.1 Ns
F_{avg}	=	208.0 N
t_{burn}	=	1.01 s
d	=	29 mm

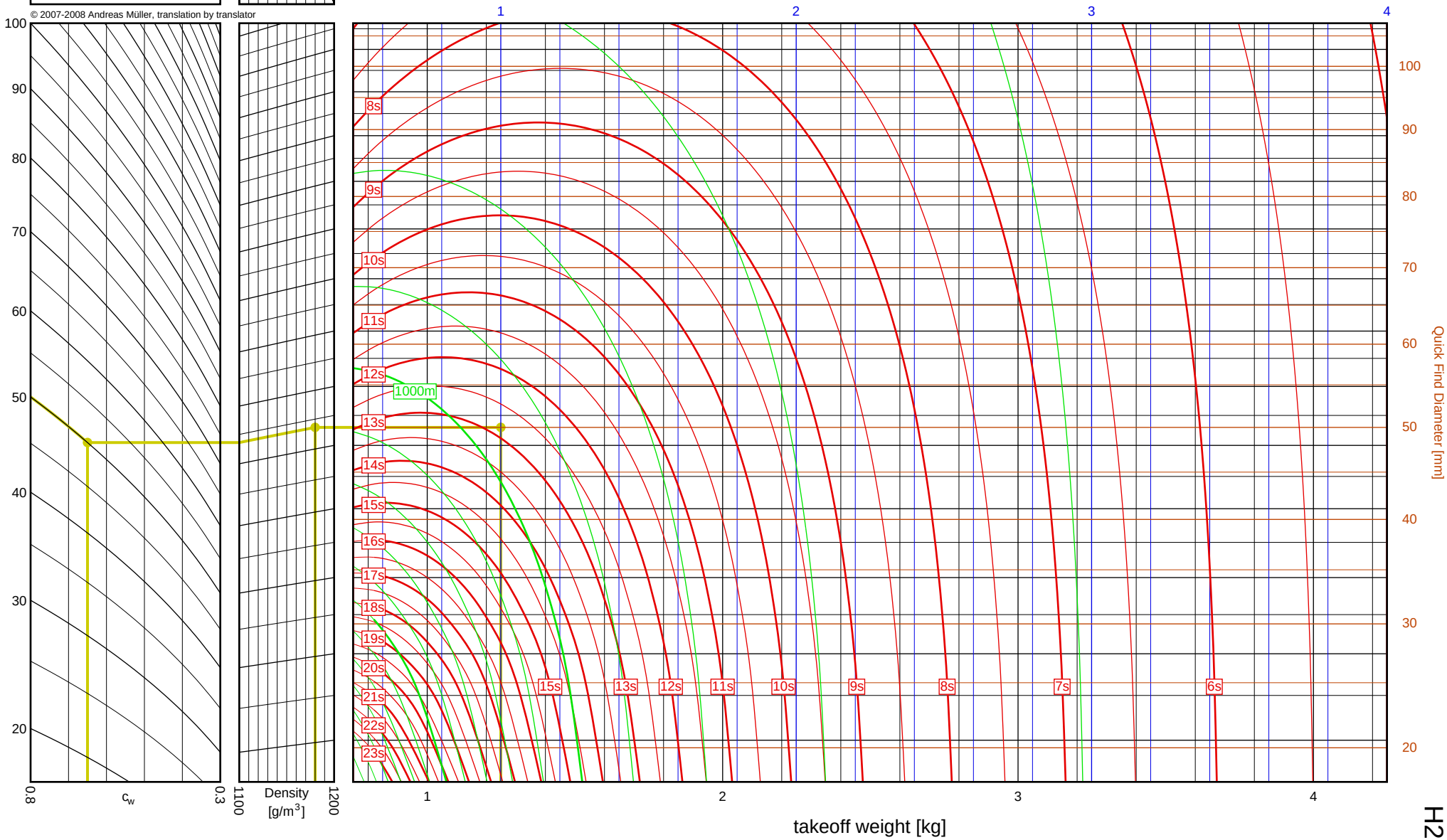
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.249kg
Results: time to apogee: 12.8s, expected altitude: 908m

empty weight [kg]



H210R

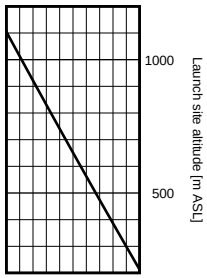
H-I 4

H210R

Aerotech H148R

I_{tot}	=	214.2 Ns
F_{avg}	=	142.8 N
t_{burn}	=	1.50 s
d	=	38 mm

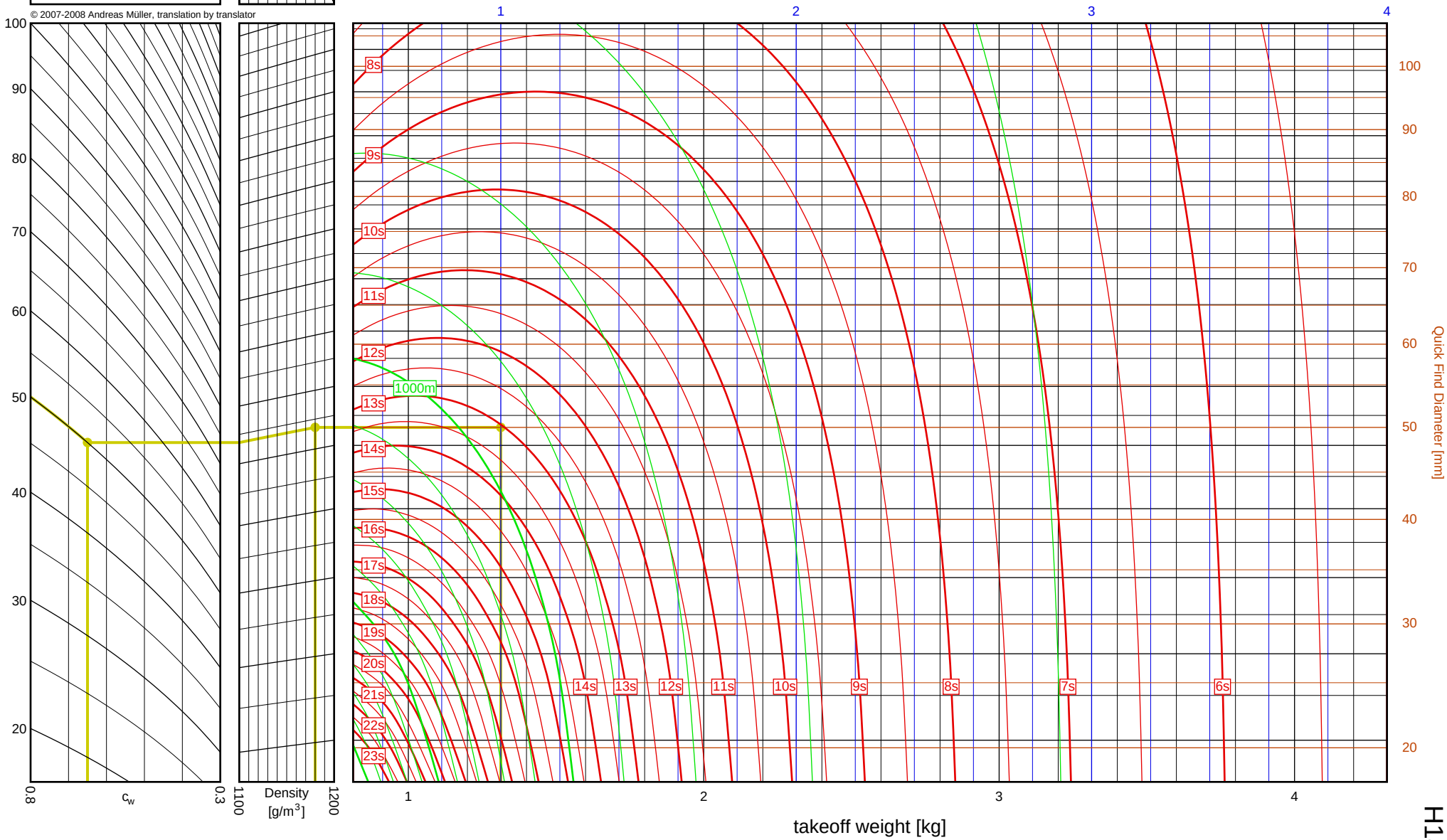
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.313kg
Results: time to apogee: 13.0s, expected altitude: 899m

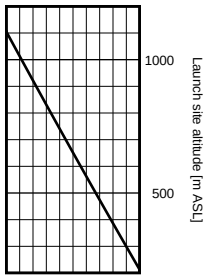
empty weight [kg]



Aerotech H220T

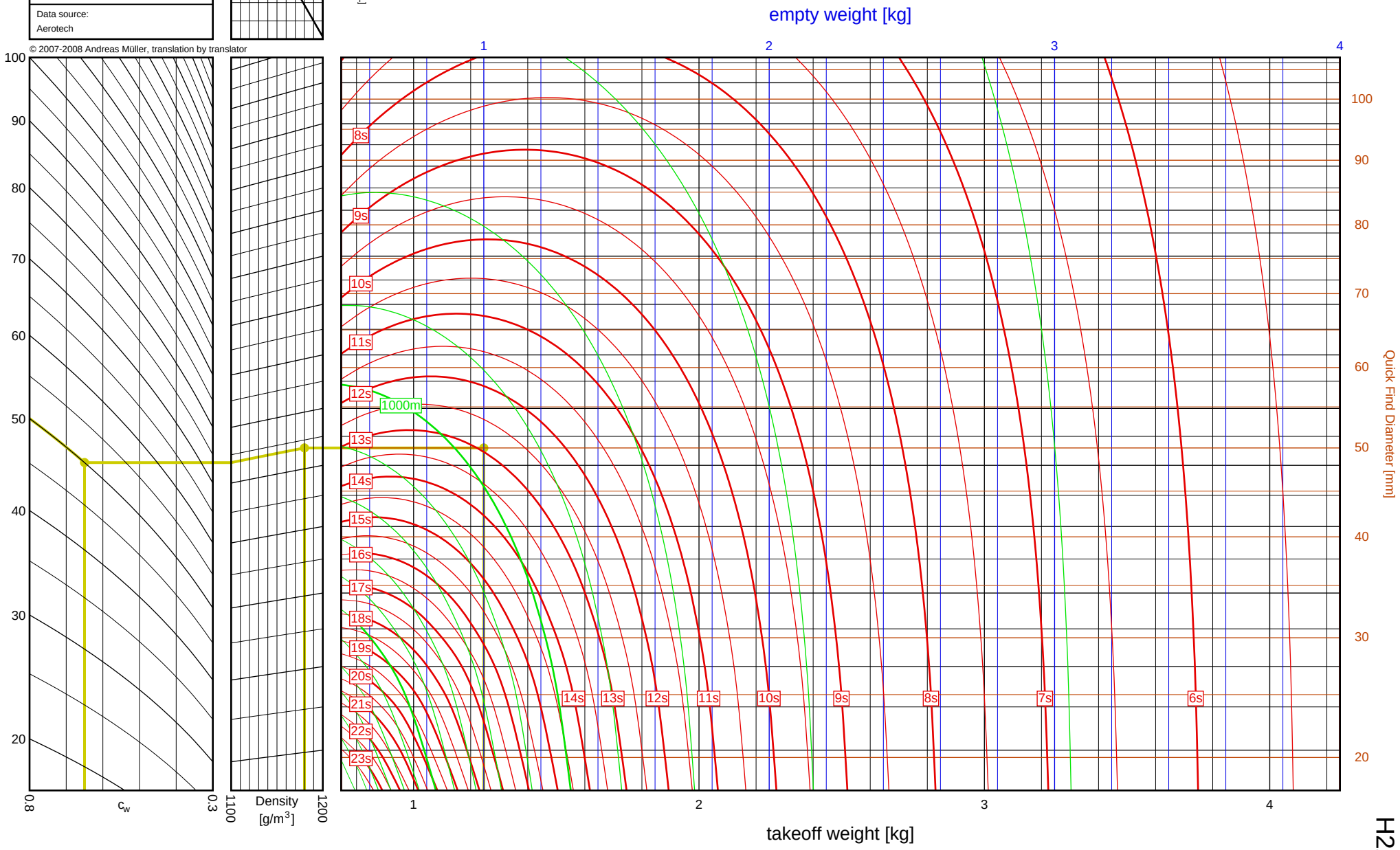
I_{tot}	=	215.4 Ns
F_{avg}	=	215.4 N
t_{burn}	=	1.00 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

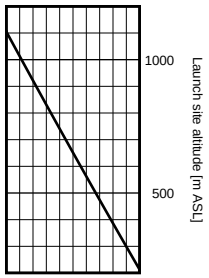
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.246kg
Results: time to apogee: 12.9s, expected altitude: 931m



Aerotech H669N

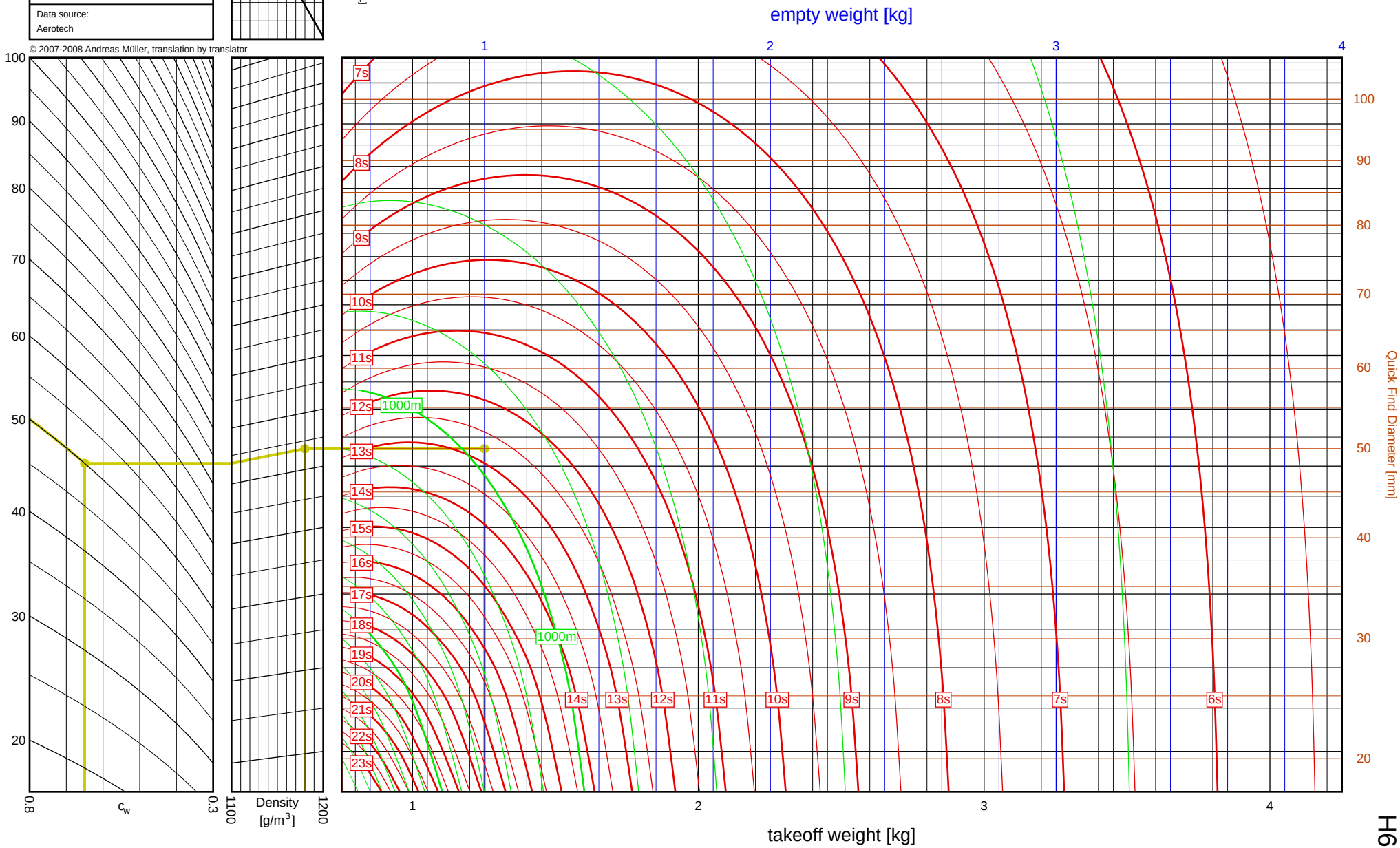
I_{tot}	=	219.7 Ns
F_{avg}	=	667.9 N
t_{burn}	=	0.33 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.252kg
Results: time to apogee: 12.8s, expected altitude: 950m



4-12

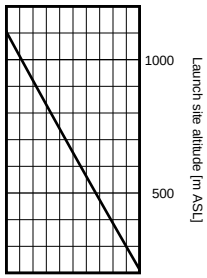
H669N

H669N

Aerotech H242T

I_{tot}	=	219.9 Ns
F_{avg}	=	183.3 N
t_{burn}	=	1.20 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.279kg
Results: time to apogee: 13.1s, expected altitude: 932m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

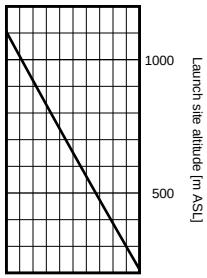
Density [g/m^3]

H242T

Aerotech H250G

I_{tot}	=	231.0 Ns
F_{avg}	=	251.1 N
t_{burn}	=	0.92 s
d	=	29 mm

Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.256kg

Results: time to apogee: 13.4s, expected altitude: 1014m

empty weight [kg]

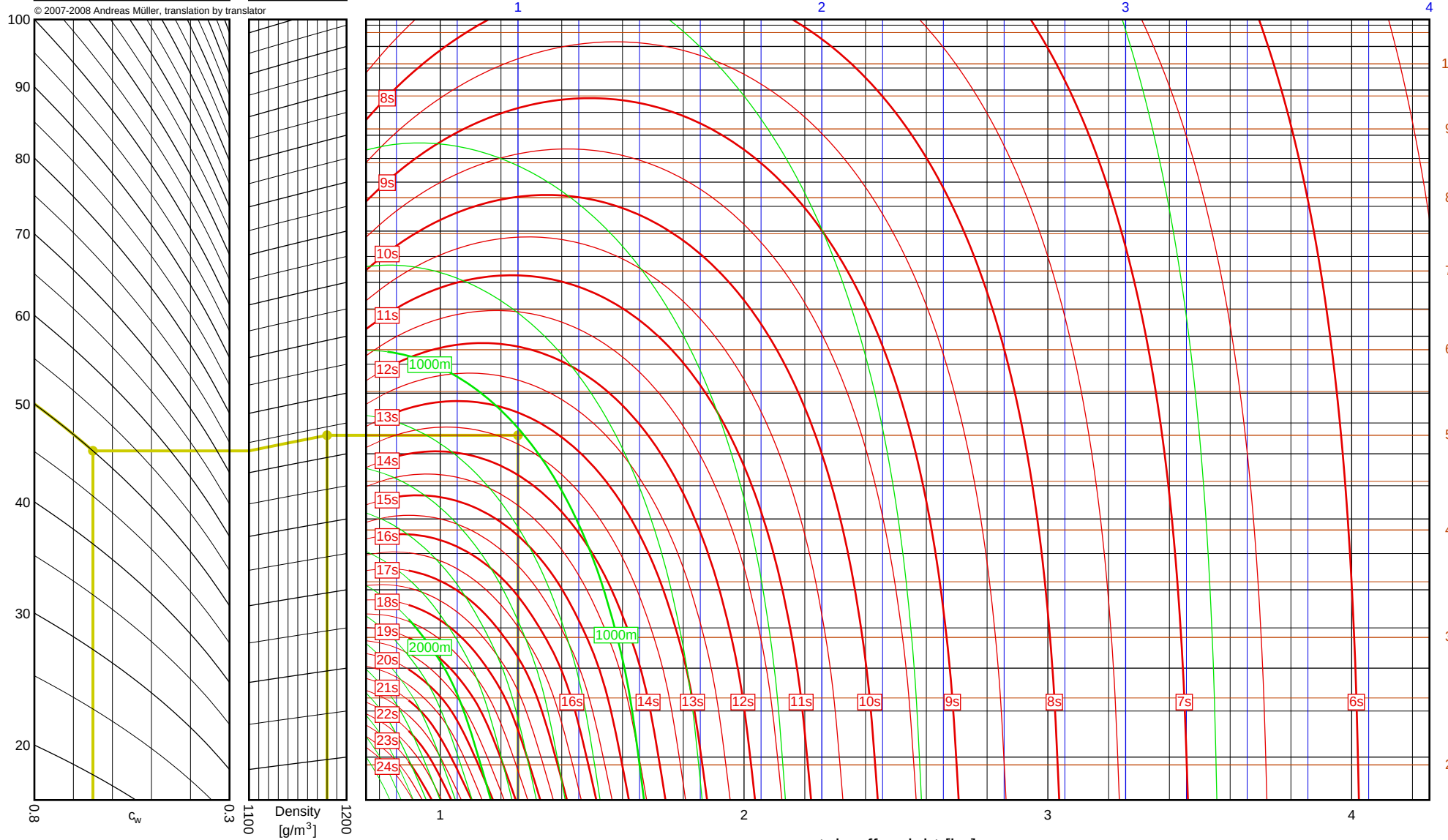
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]



H250G

H250G

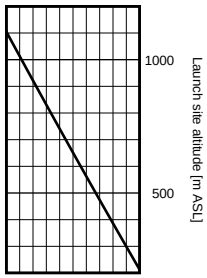
H-I

Aerotech

H112J

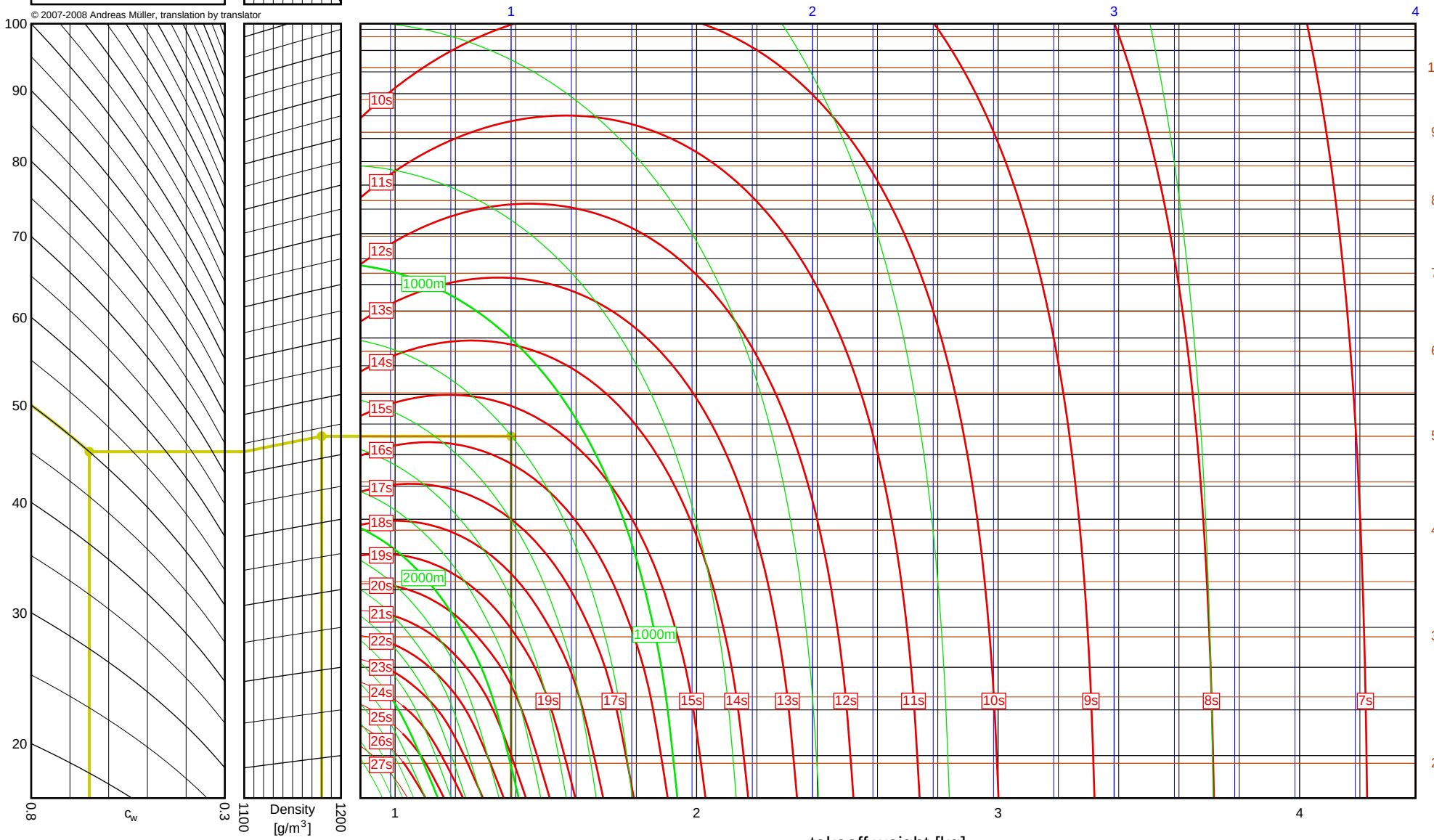
I_{tot}	=	280.7 Ns
F_{avg}	=	82.6 N
t_{burn}	=	3.40 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.385kg
Results: time to apogee: 15.5s, expected altitude: 1202m

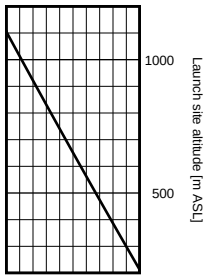


Aerotech

H268R

I_{tot}	=	309.7 Ns
F_{avg}	=	262.5 N
t_{burn}	=	1.18 s
d	=	29 mm

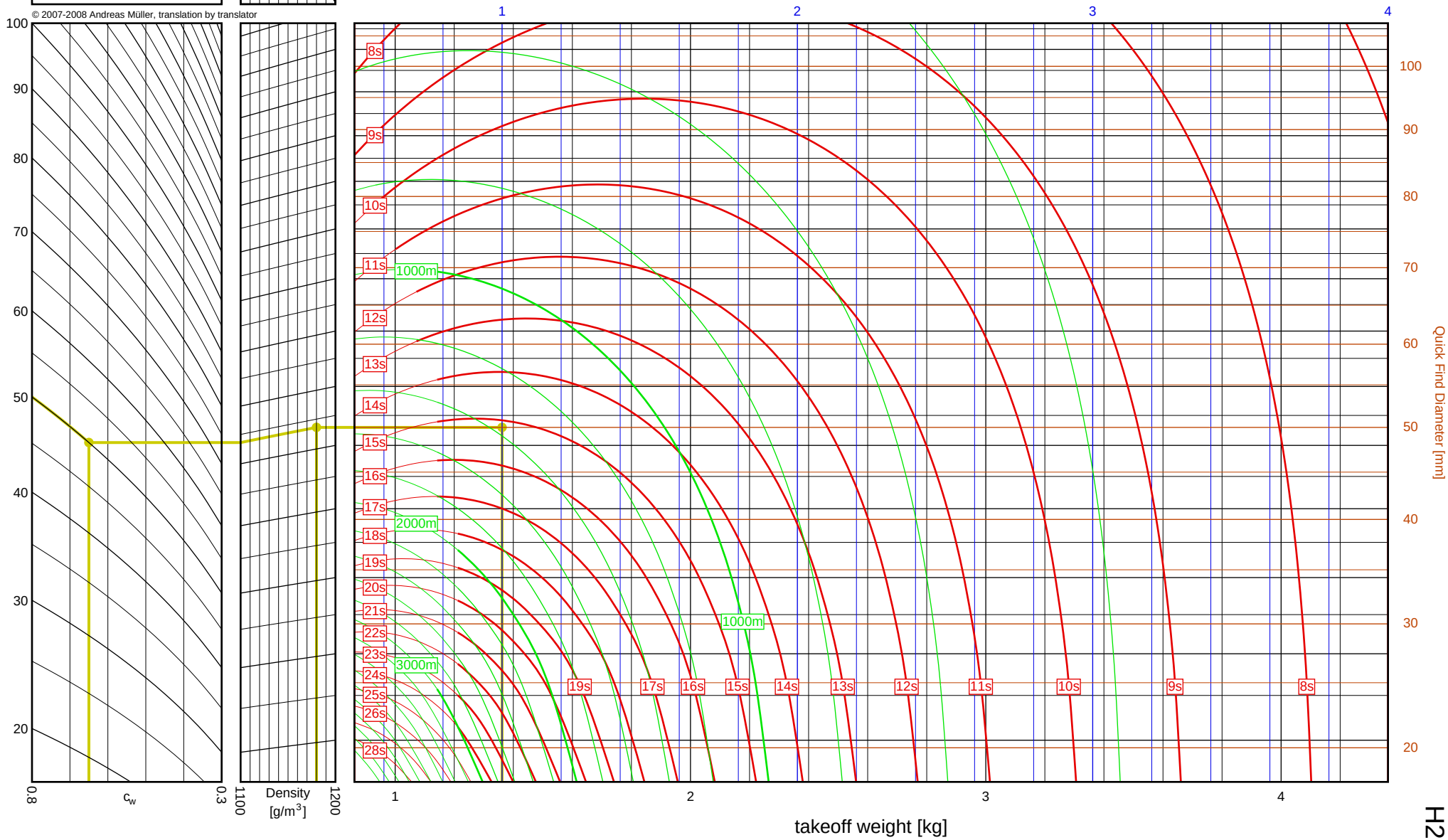
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.362kg
Results: time to apogee: 15.2s, expected altitude: 1374m

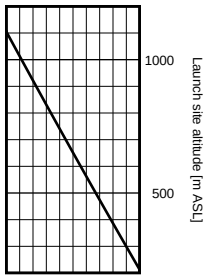
empty weight [kg]



Aerotech I357T

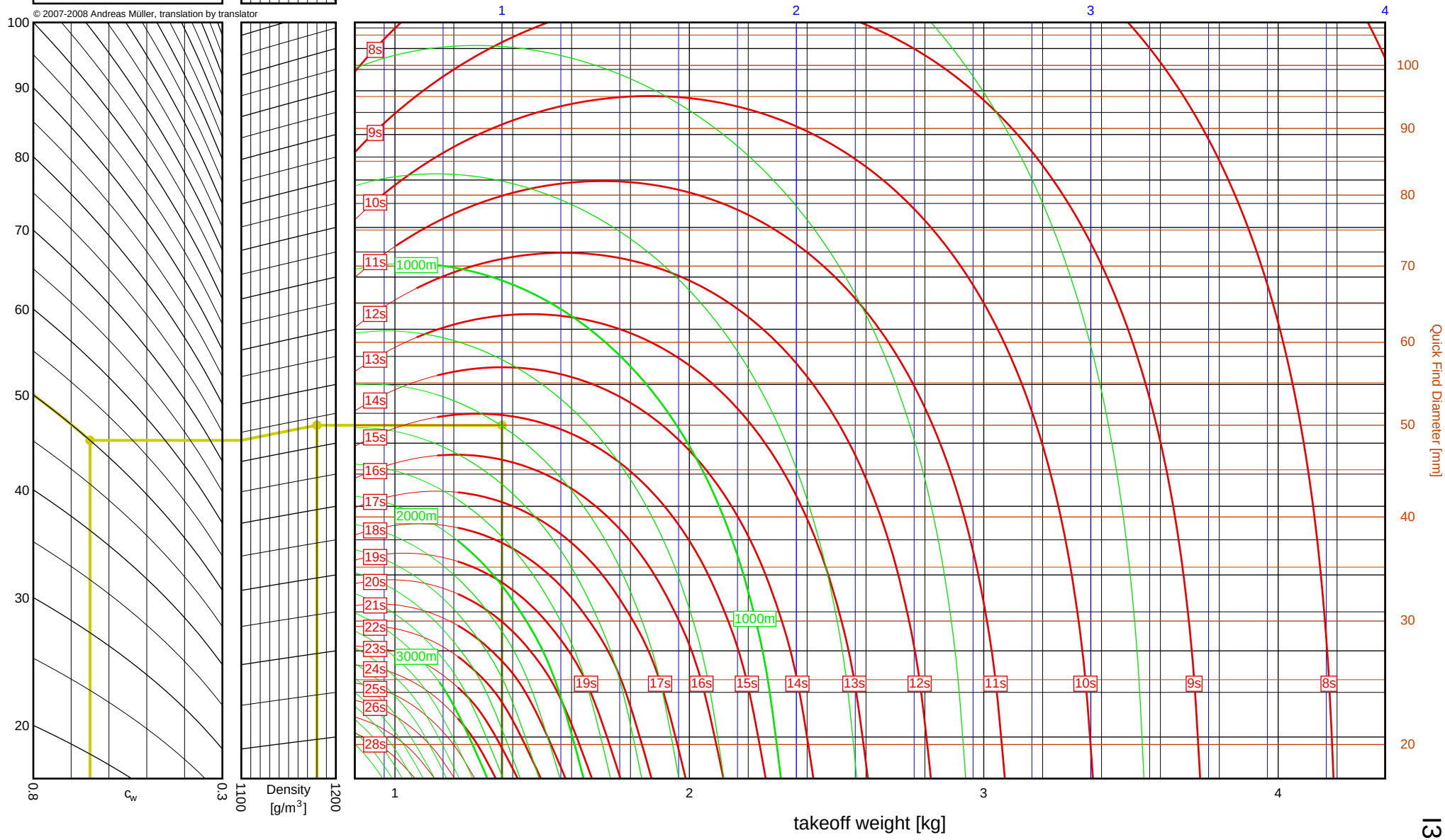
I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

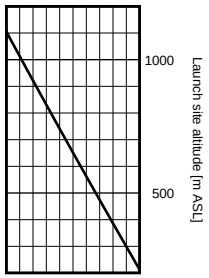
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.363kg
Results: time to apogee: 15.2s, expected altitude: 1398m



Aerotech I218R

I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.375kg
Results: time to apogee: 15.5s, expected altitude: 1410m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

I218R

H-I

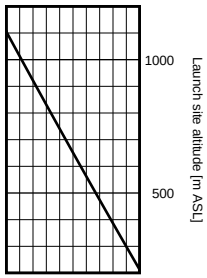
I218R

Aerotech

H999N

I_{tot}	=	320.0 Ns
F_{avg}	=	972.6 N
t_{burn}	=	0.33 s
d	=	38 mm

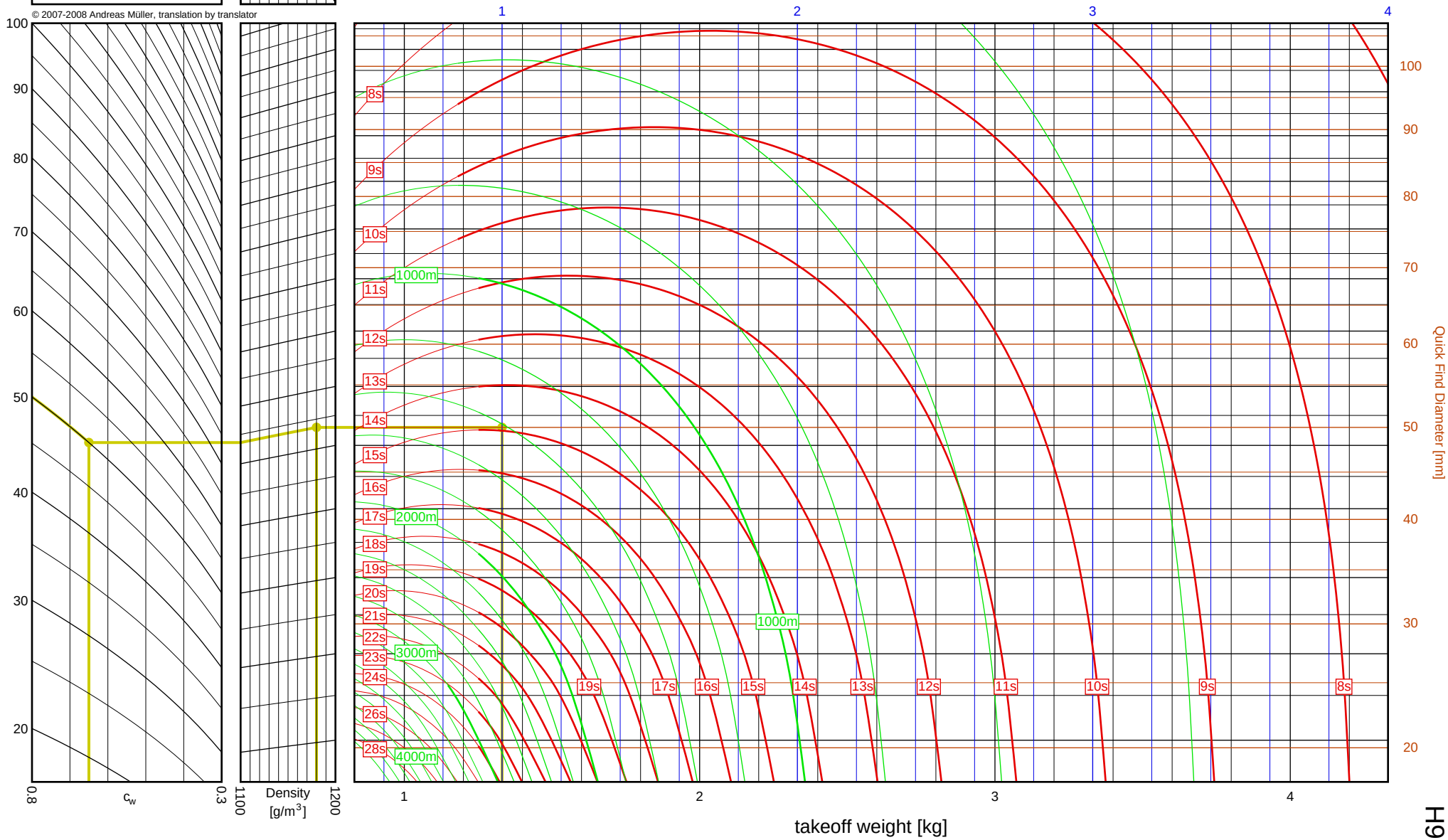
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.331kg
Results: time to apogee: 14.9s, expected altitude: 1413m

empty weight [kg]



H999N

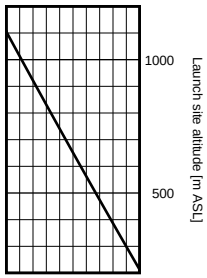
H-I 4

H999N

Aerotech I200W

I_{tot}	=	326.8 Ns
F_{avg}	=	181.2 N
t_{burn}	=	1.80 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.358kg
Results: time to apogee: 15.7s, expected altitude: 1459m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

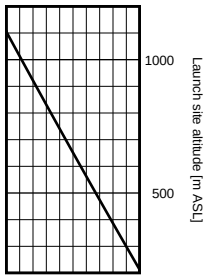
Density [g/m^3]

I200W

Aerotech
I161W

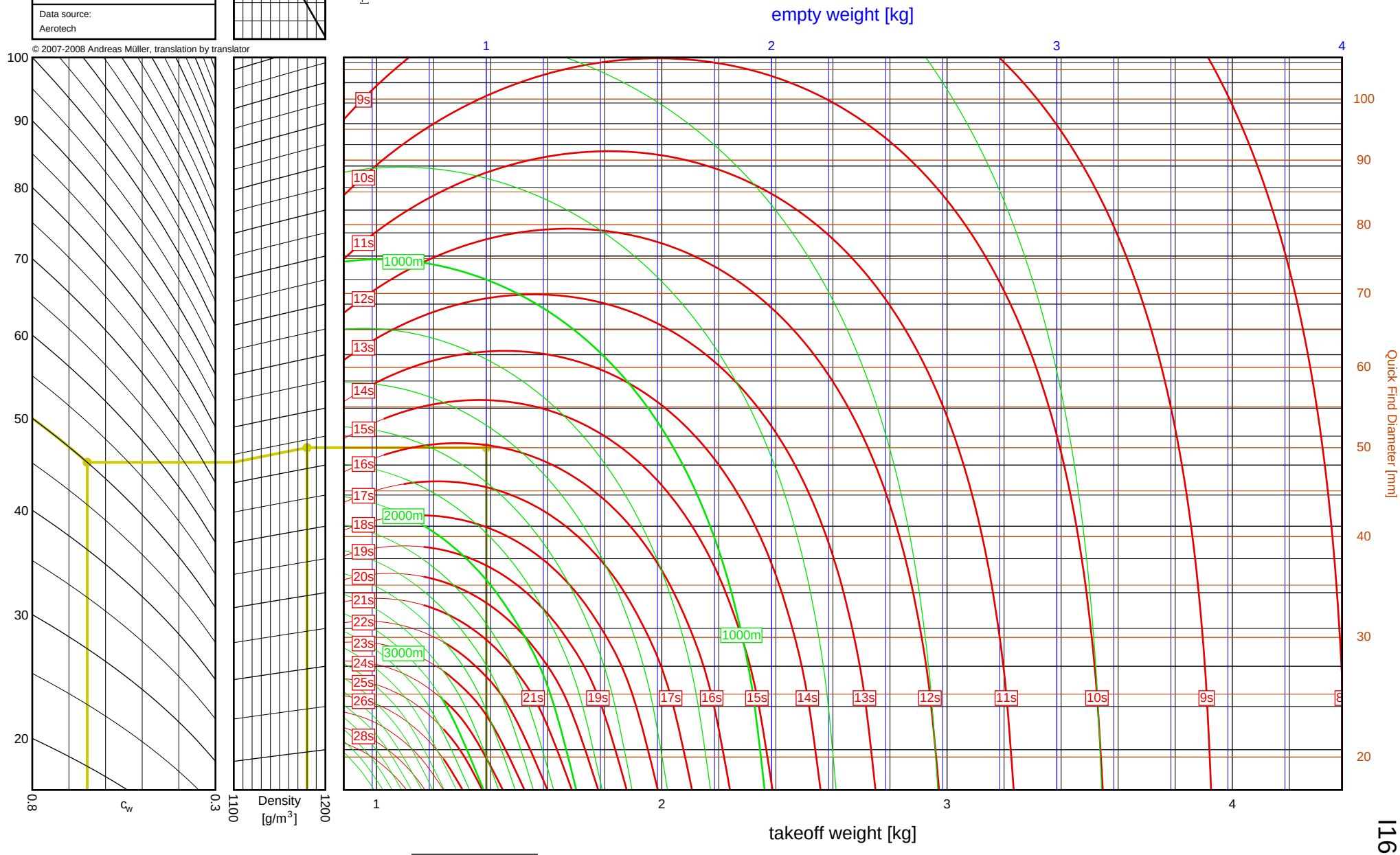
I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

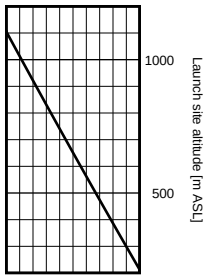
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.385kg
Results: time to apogee: 16.1s, expected altitude: 1477m



Aerotech I245G

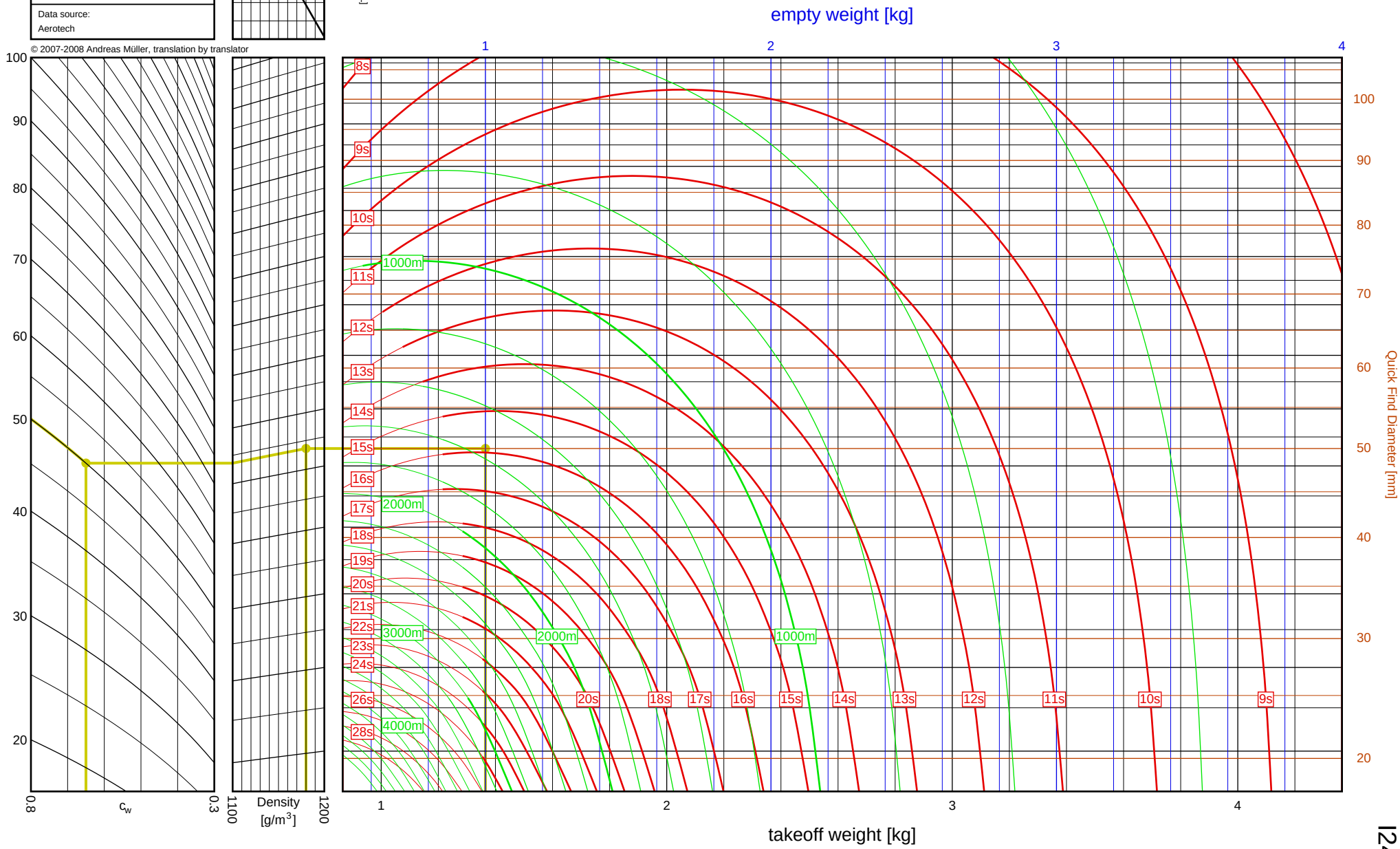
I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

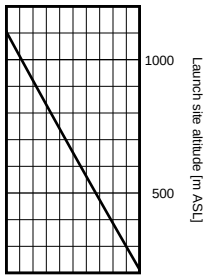
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.365kg
Results: time to apogee: 15.9s, expected altitude: 1560m



Aerotech I225FJ

I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.486kg
Results: time to apogee: 16.5s, expected altitude: 1622m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

4-23

I225FJ

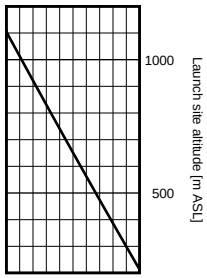
H-I

4

Aerotech
I154J

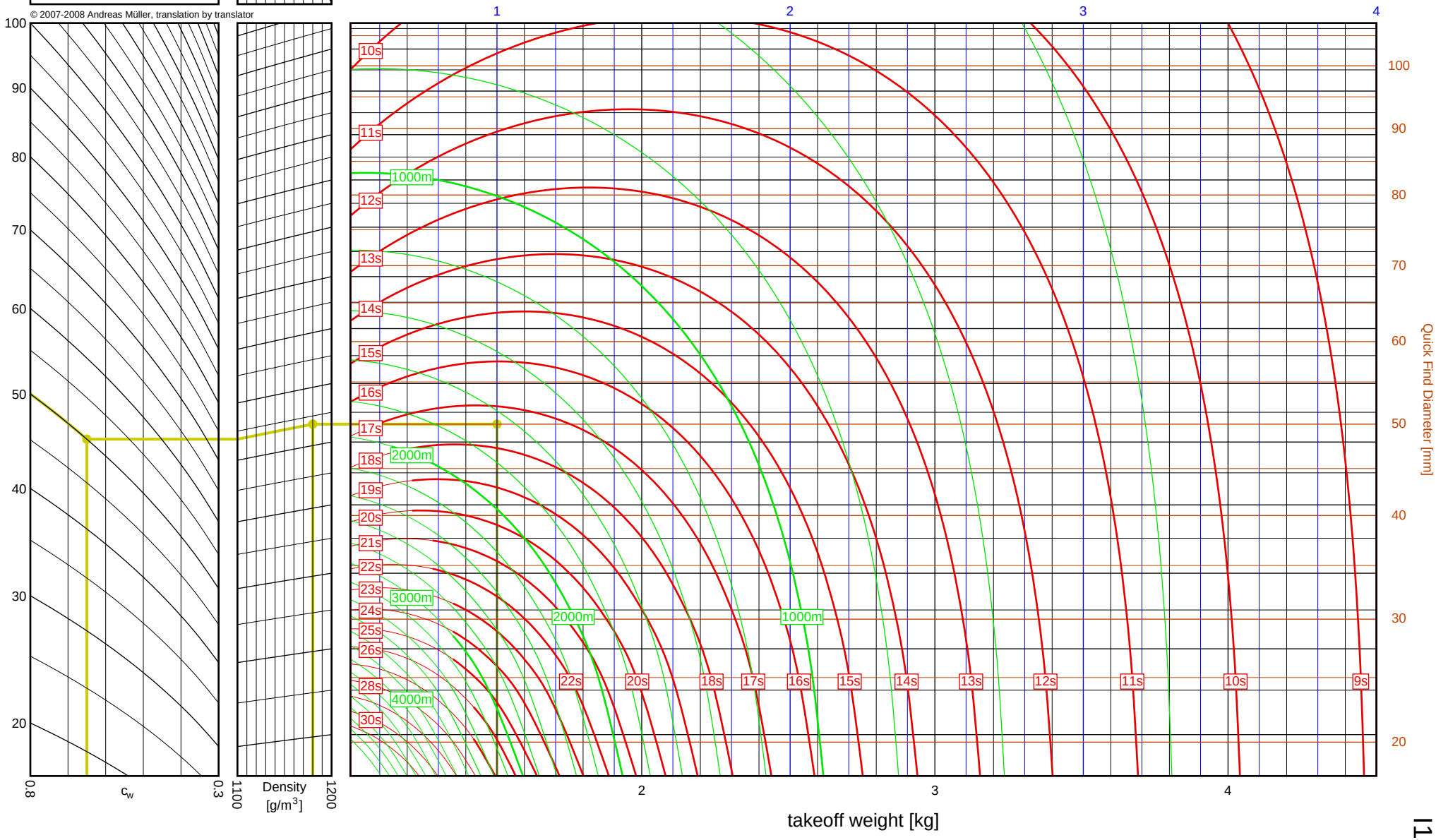
I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.506kg
Results: time to apogee: 17.4s, expected altitude: 1651m



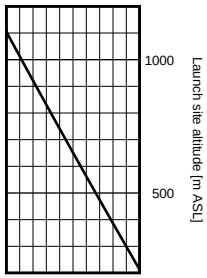
Aerotech I357T

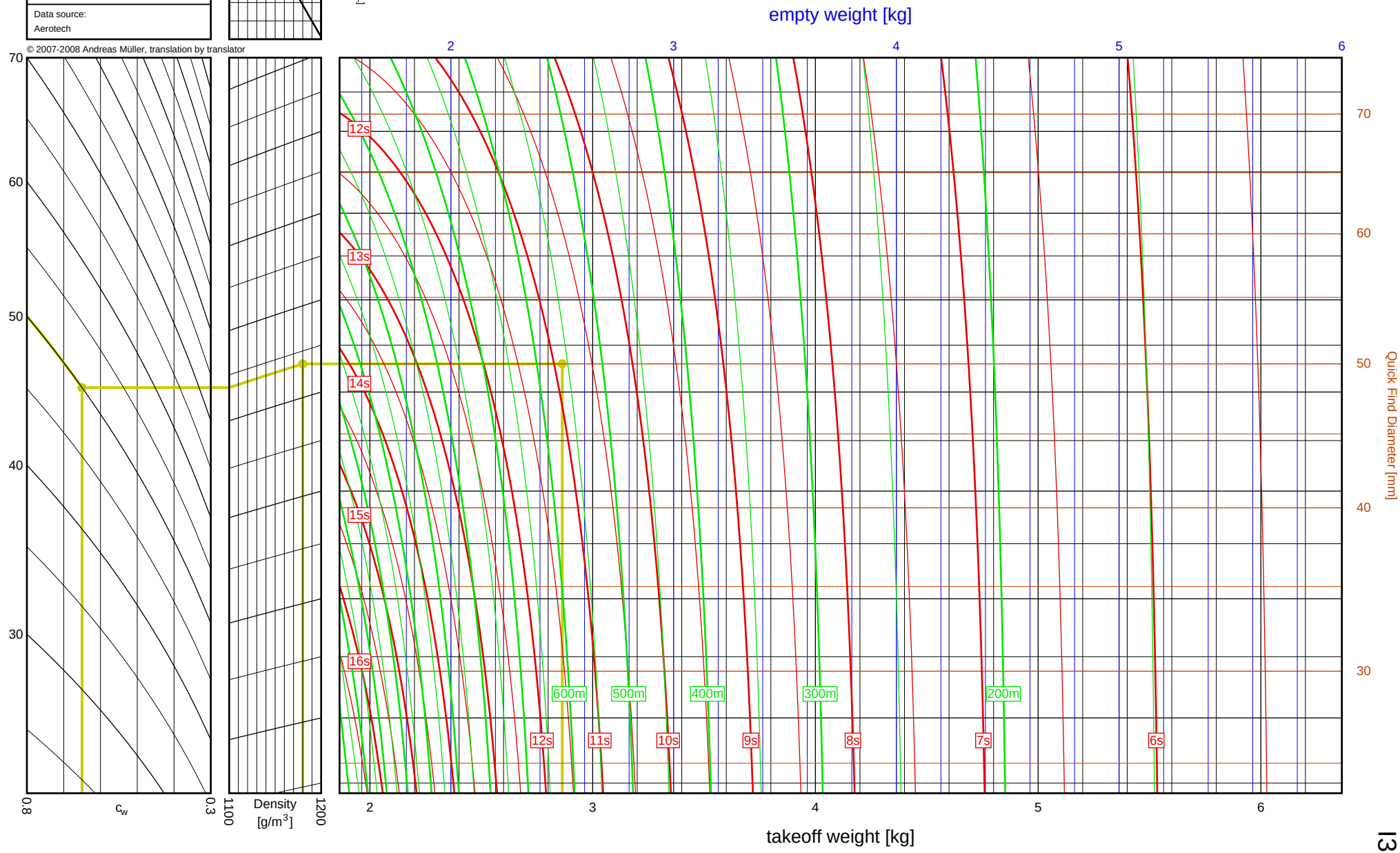
I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.863kg
Results: time to apogee: 10.9s, expected altitude: 559m





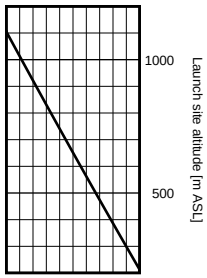
Aerotech I218R

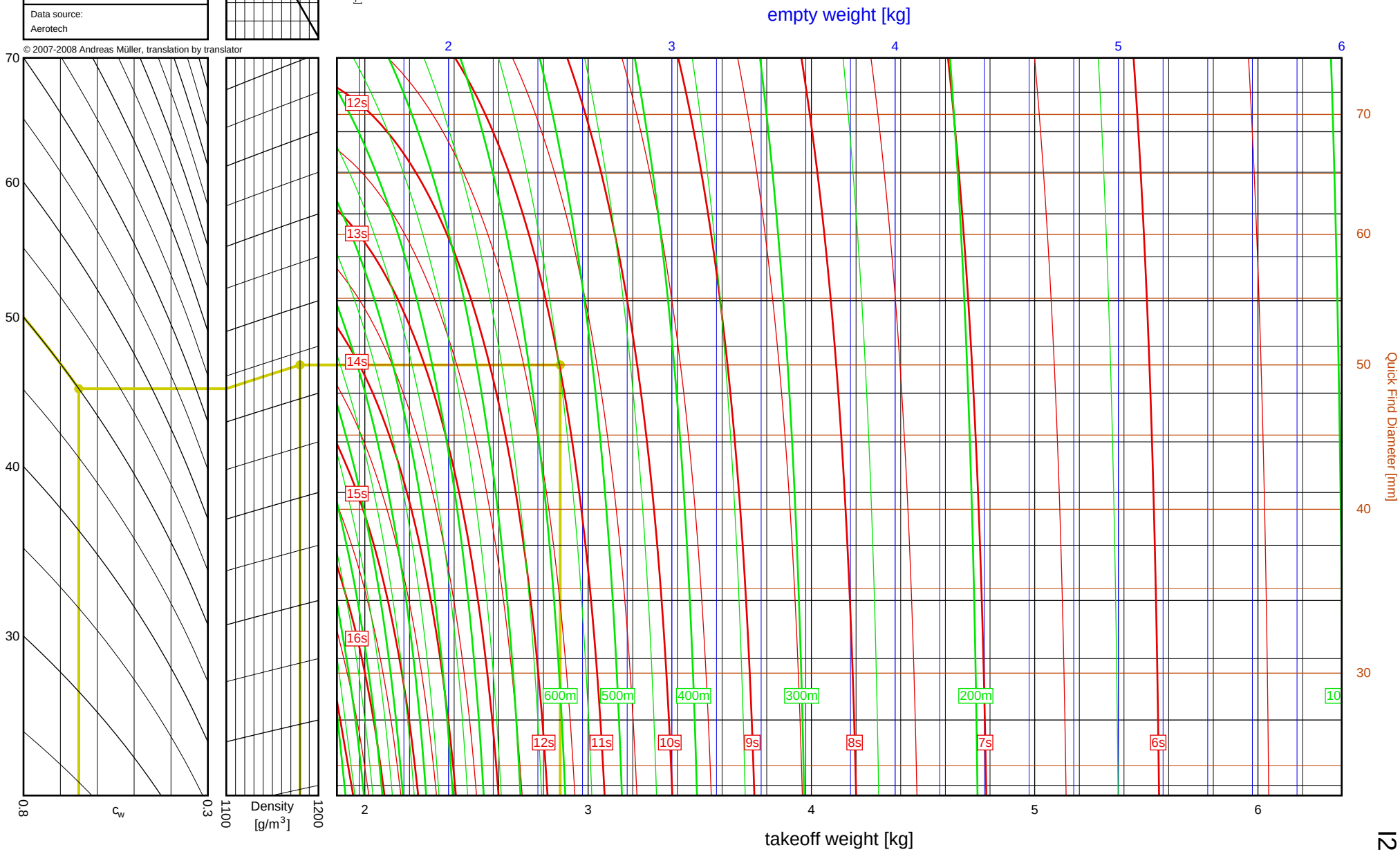
I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.875kg
Results: time to apogee: 11.0s, expected altitude: 548m

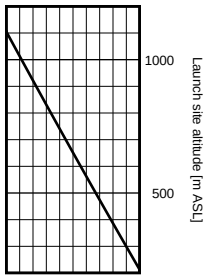




Aerotech I200W

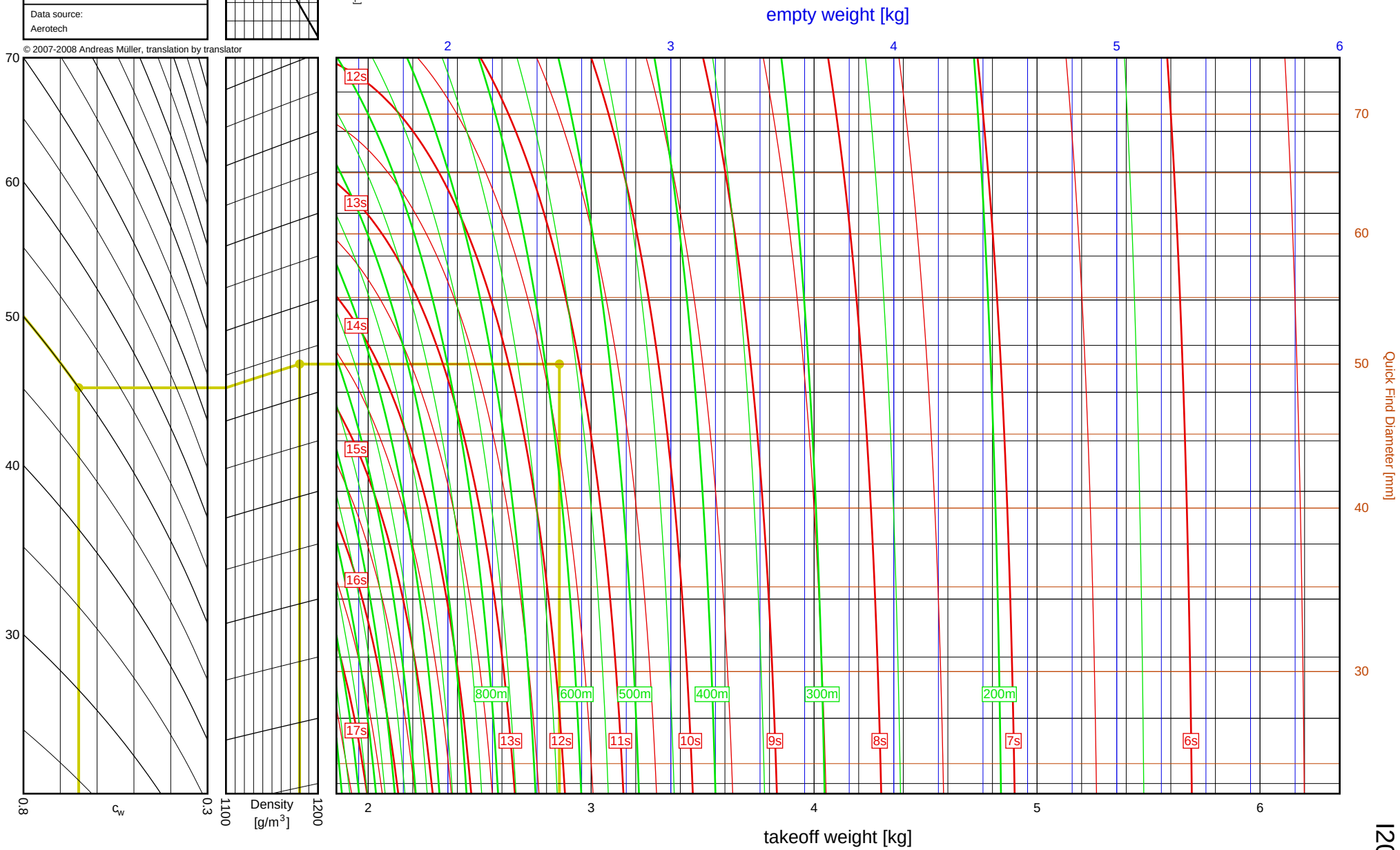
I_{tot}	=	326.8 Ns
F_{avg}	=	181.2 N
t_{burn}	=	1.80 s
d	=	29 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.858kg
Results: time to apogee: 11.3s, expected altitude: 577m



I200W

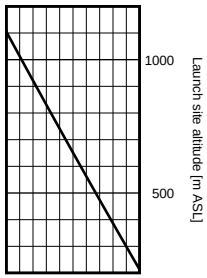
2", I-J

I200W

Aerotech I161W

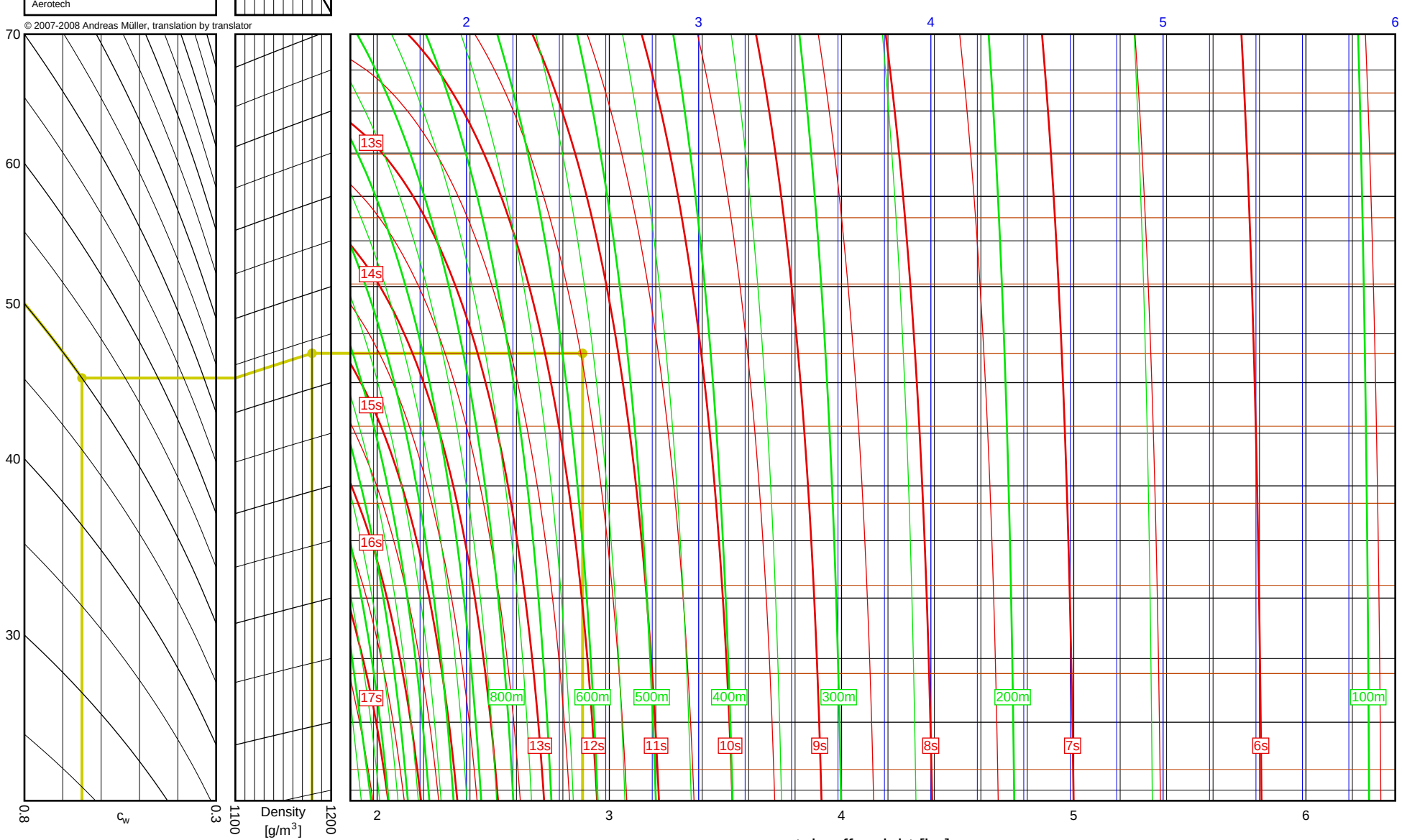
I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.885kg
Results: time to apogee: 11.5s, expected altitude: 567m



I161W

2", I-J

I161W

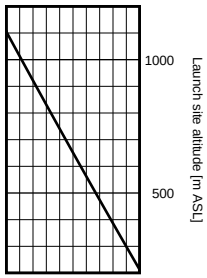
Aerotech I245G

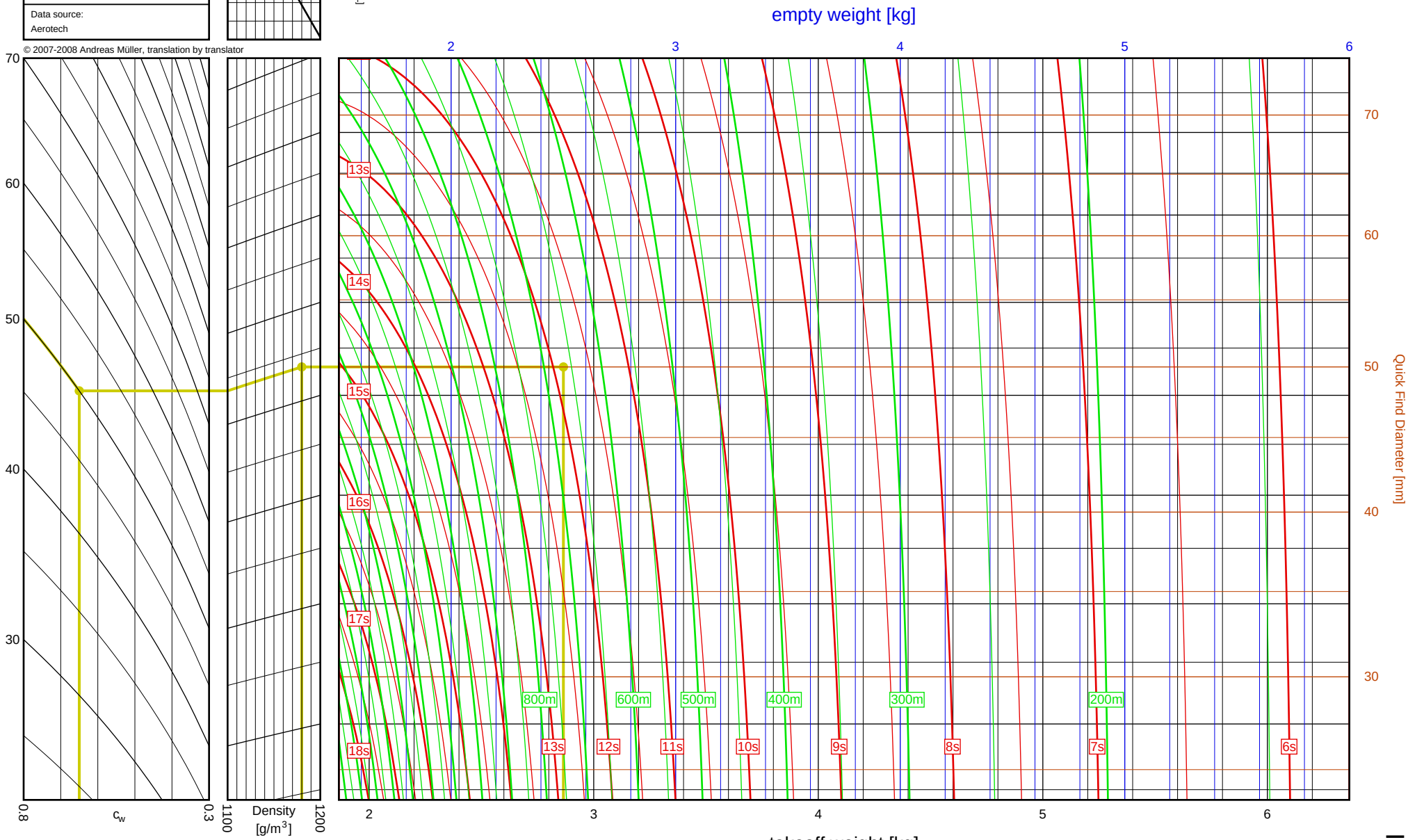
I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.865kg
Results: time to apogee: 11.9s, expected altitude: 664m

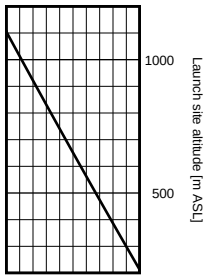




Aerotech I225FJ

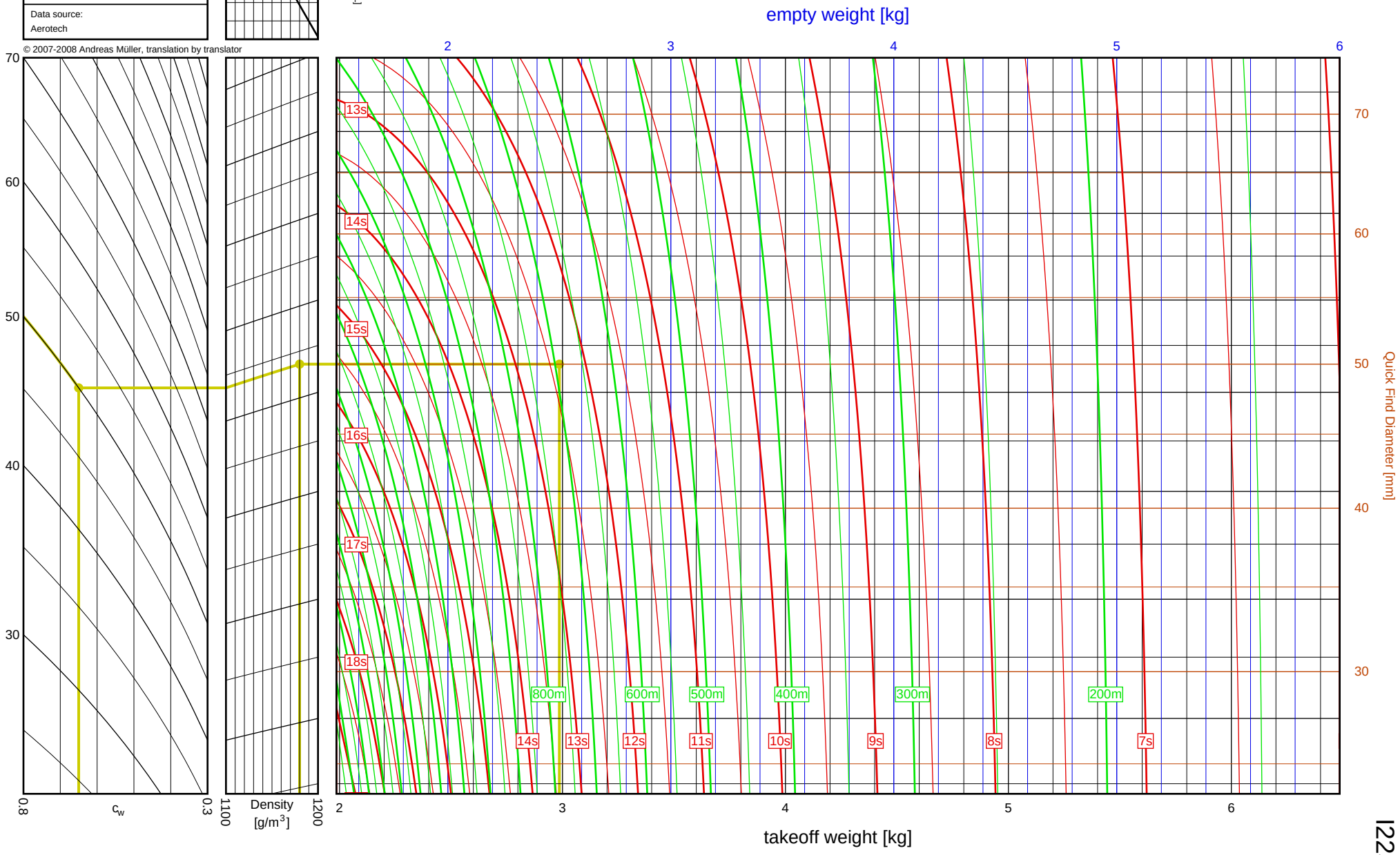
I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.986kg
Results: time to apogee: 12.4s, expected altitude: 692m

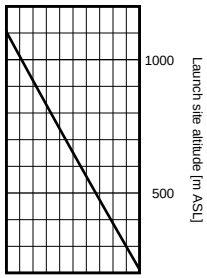


Aerotech

I154J

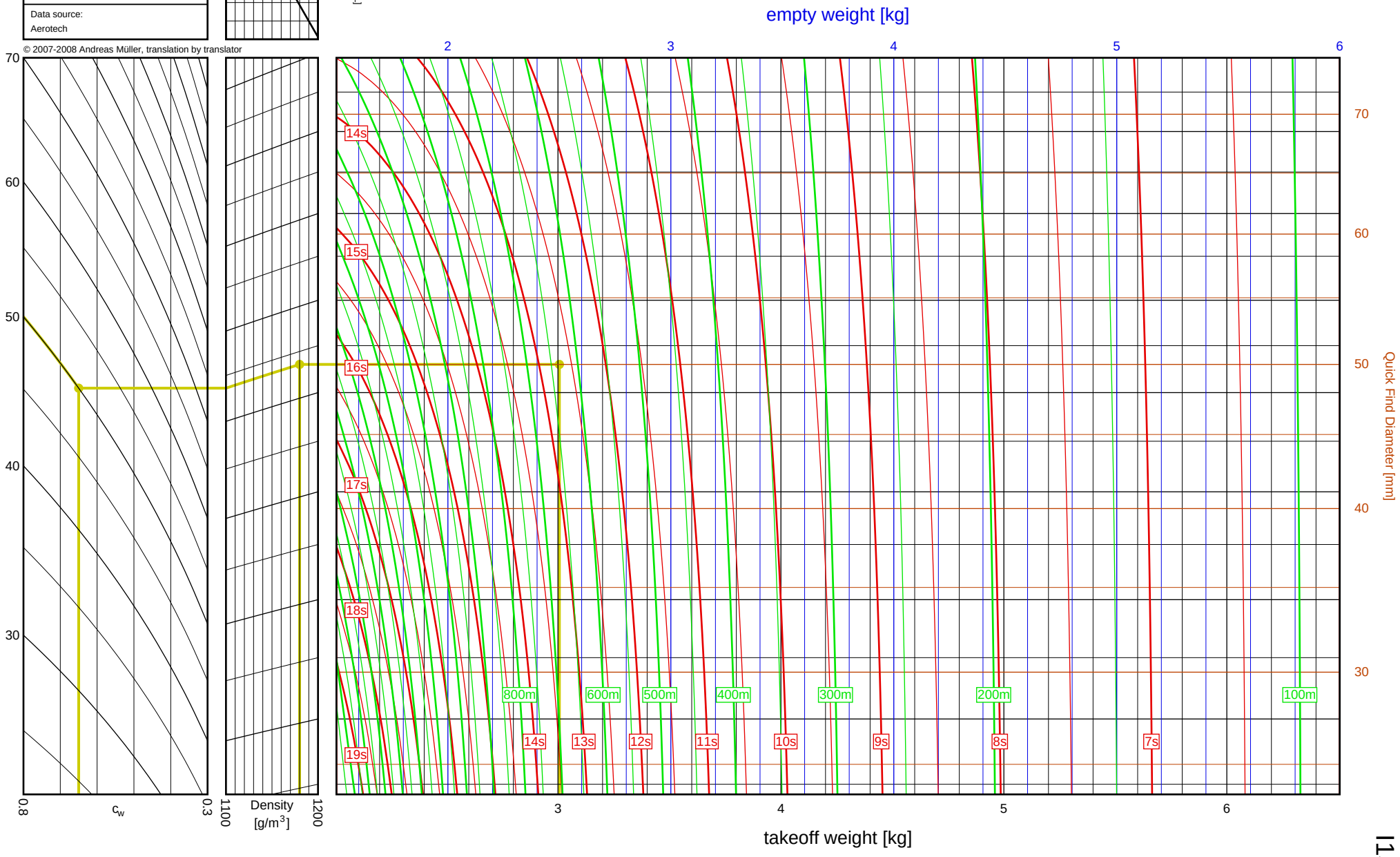
I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.006kg
Results: time to apogee: 12.7s, expected altitude: 634m



I154J

2", I-J

I154J

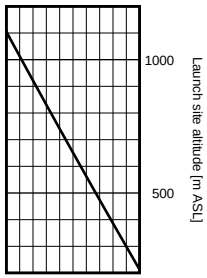
Aerotech I300T

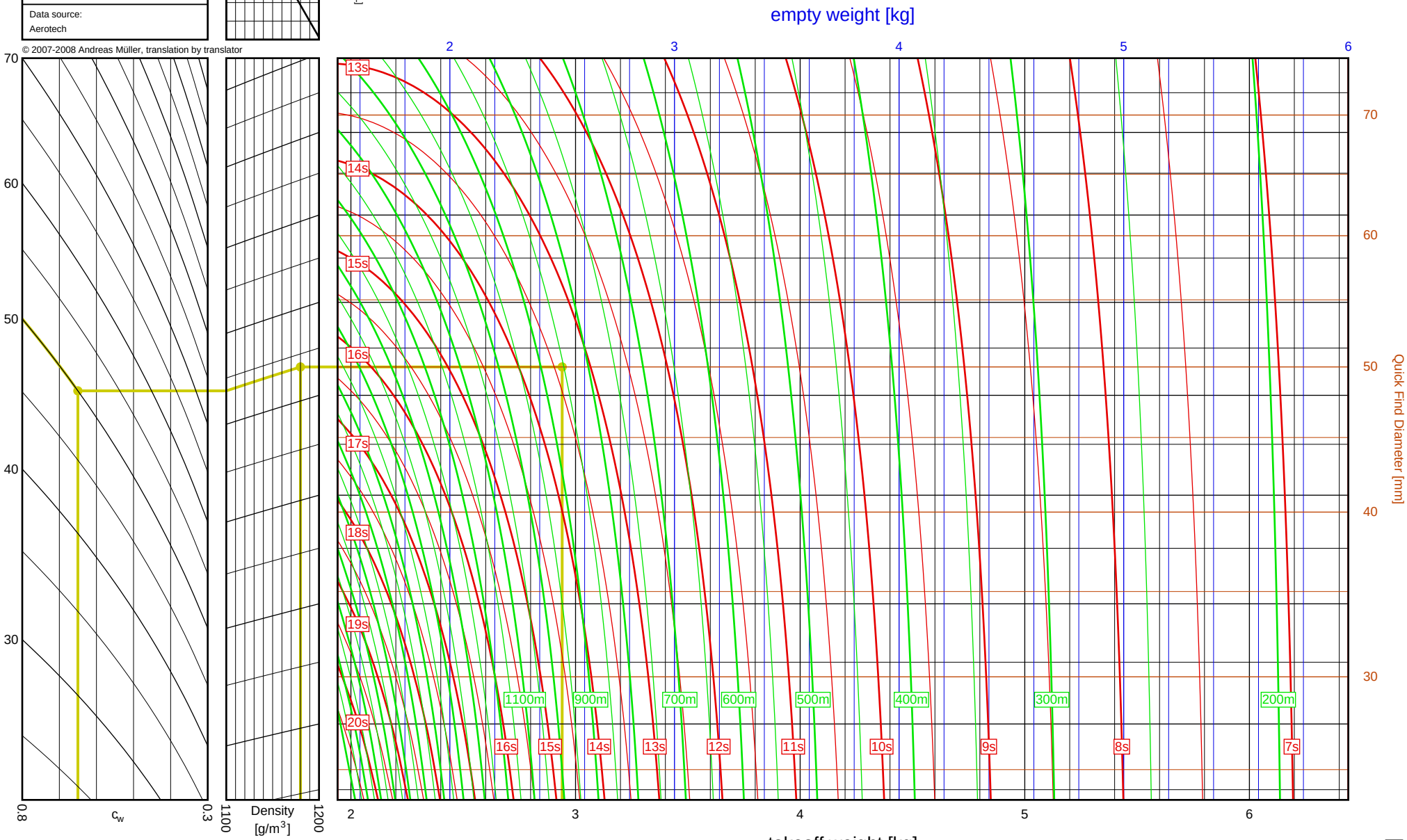
I_{tot}	=	413.1 Ns
F_{avg}	=	258.2 N
t_{burn}	=	1.60 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.941kg
Results: time to apogee: 13.4s, expected altitude: 854m

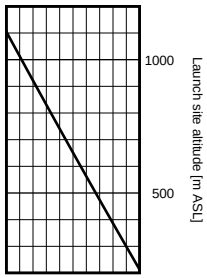




Aerotech I285R

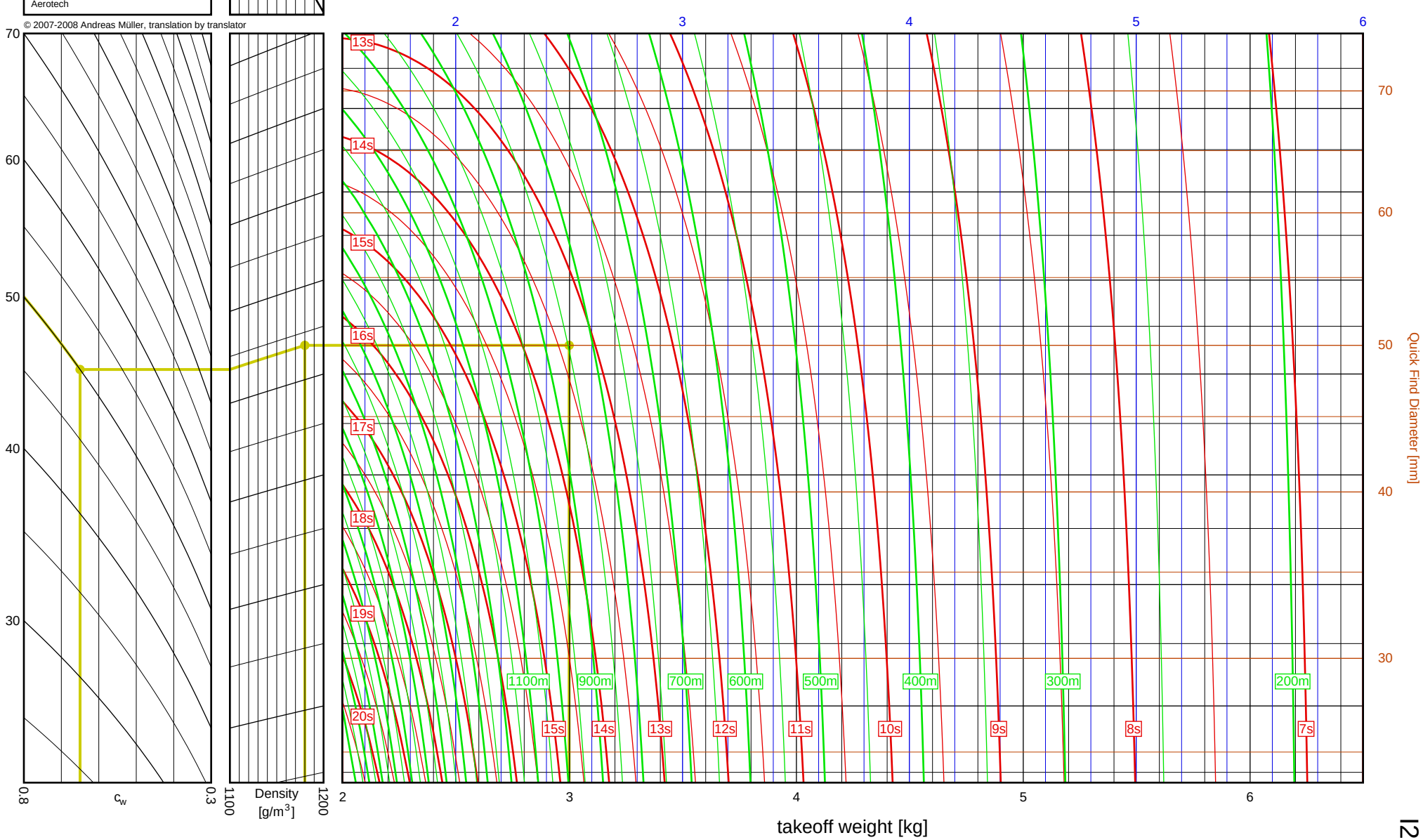
I_{tot}	=	415.0 Ns
F_{avg}	=	276.6 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.998kg
Results: time to apogee: 13.4s, expected altitude: 848m



I285R

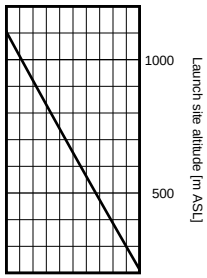
2", I-J

I285R

Aerotech I211W

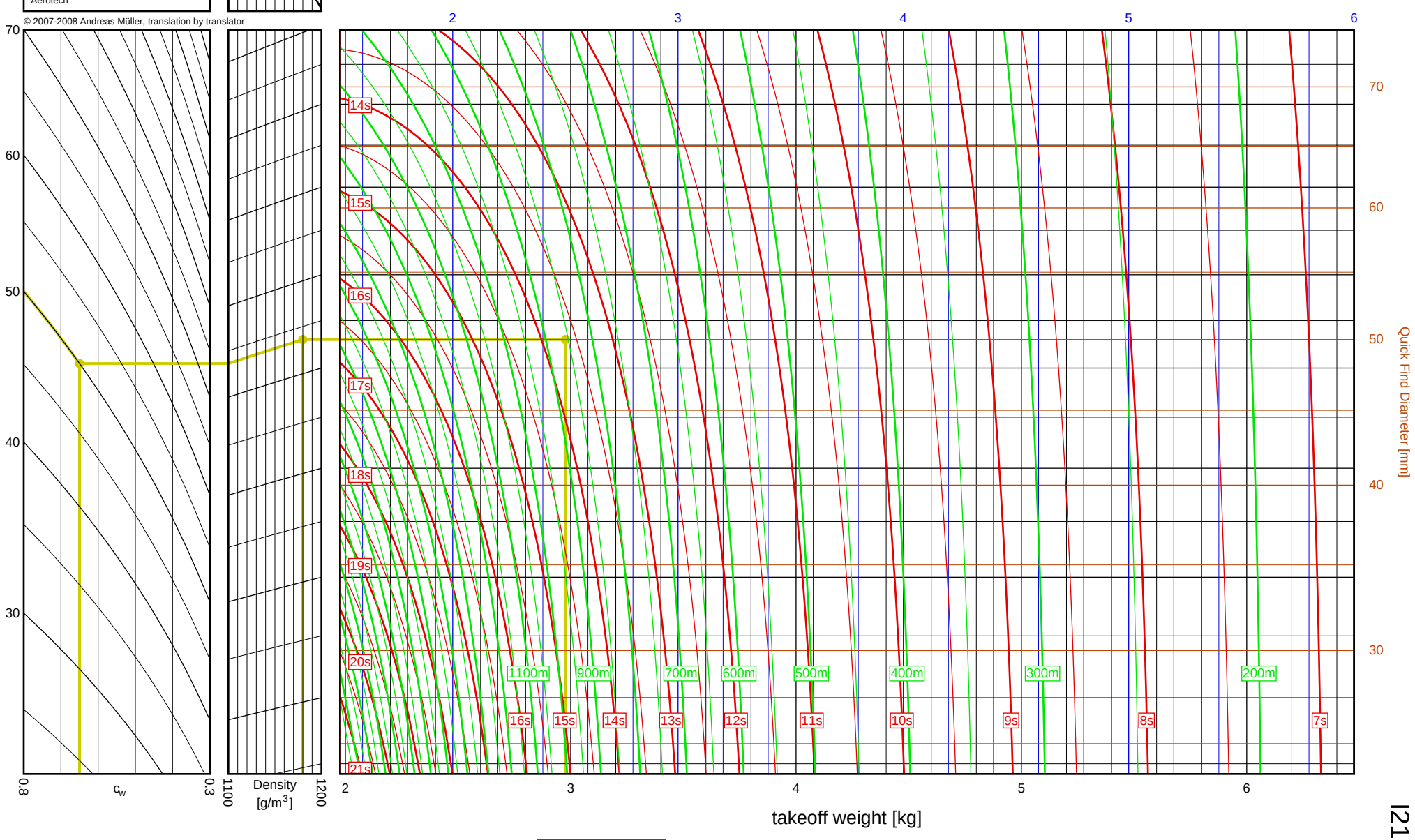
I_{tot}	=	421.2 Ns
F_{avg}	=	191.4 N
t_{burn}	=	2.20 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

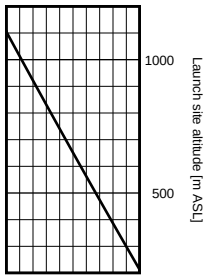
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.976kg
Results: time to apogee: 13.7s, expected altitude: 856m



Aerotech I1299N

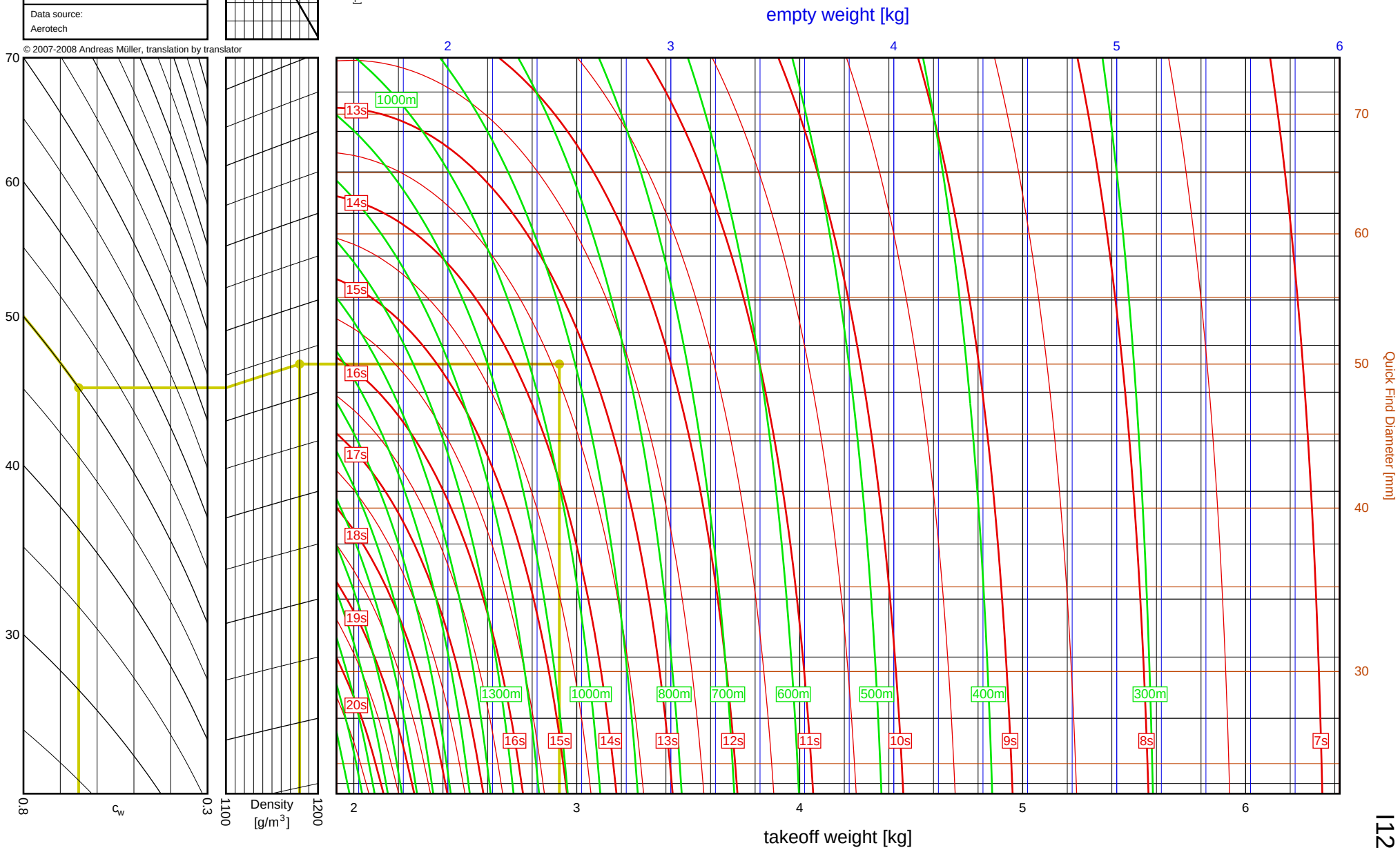
I_{tot}	=	424.4 Ns
F_{avg}	=	1248.4 N
t_{burn}	=	0.34 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.922kg
Results: time to apogee: 13.4s, expected altitude: 933m



I1299N

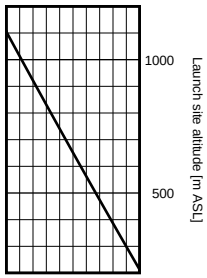
2", I-J

I1299N

Aerotech I195J

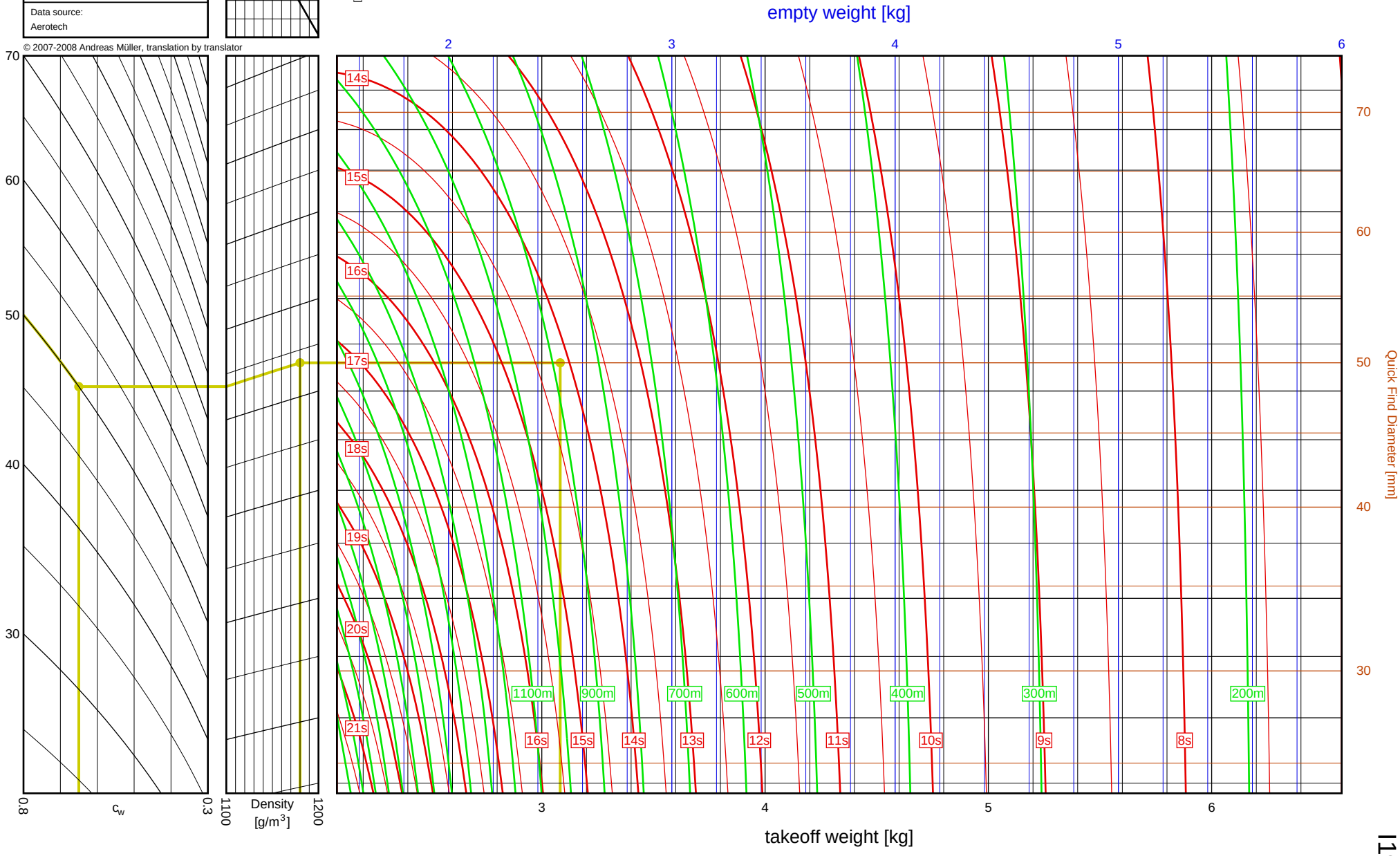
I_{tot}	=	443.0 Ns
F_{avg}	=	156.5 N
t_{burn}	=	2.83 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

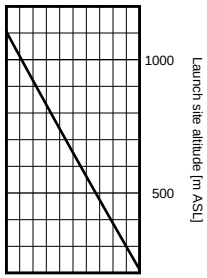
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.082kg
Results: time to apogee: 14.1s, expected altitude: 883m



Aerotech I305FJ

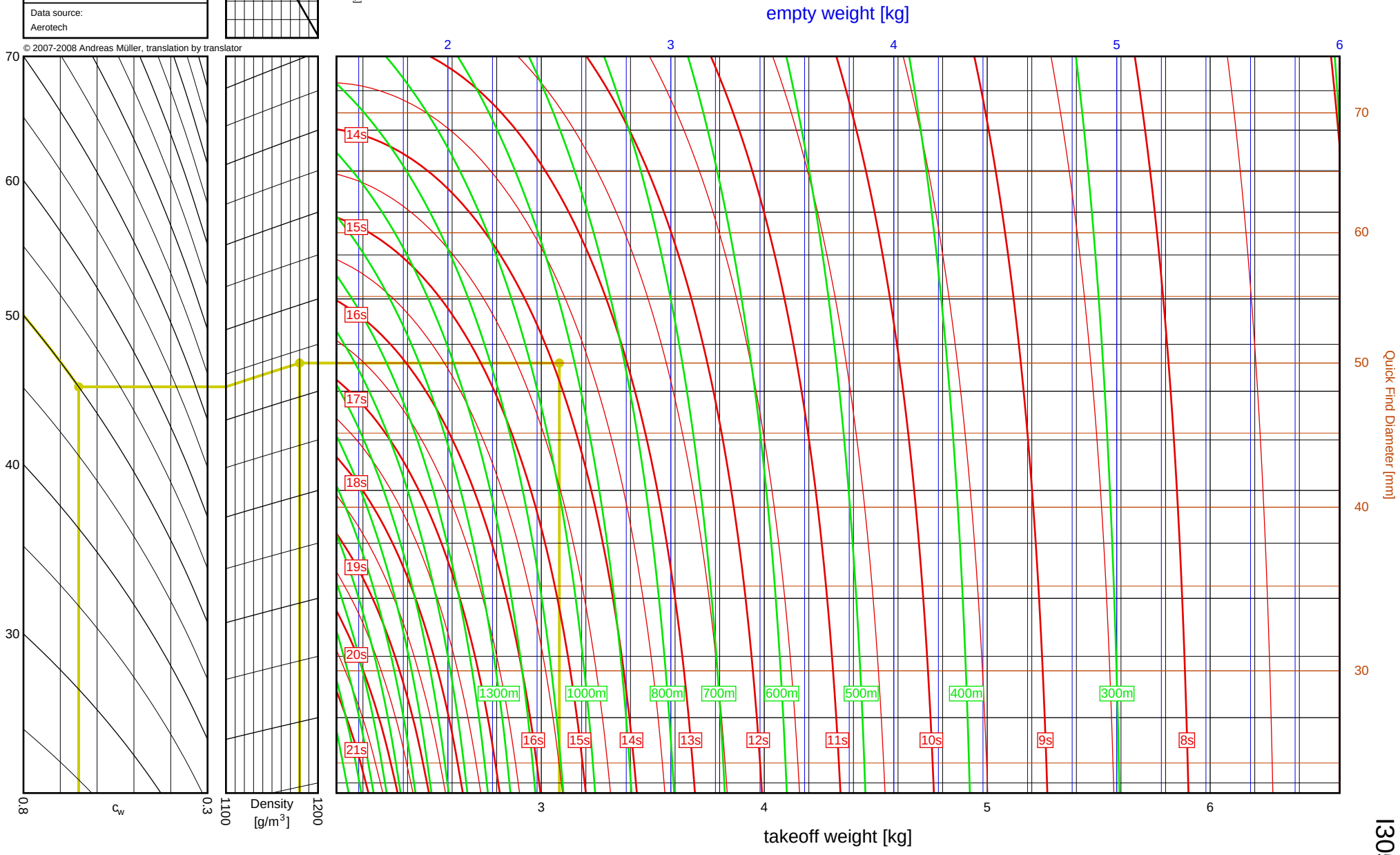
I_{tot}	=	443.9 Ns
F_{avg}	=	277.4 N
t_{burn}	=	1.60 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

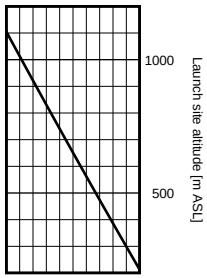
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.081kg
Results: time to apogee: 13.9s, expected altitude: 933m



Aerotech I435T

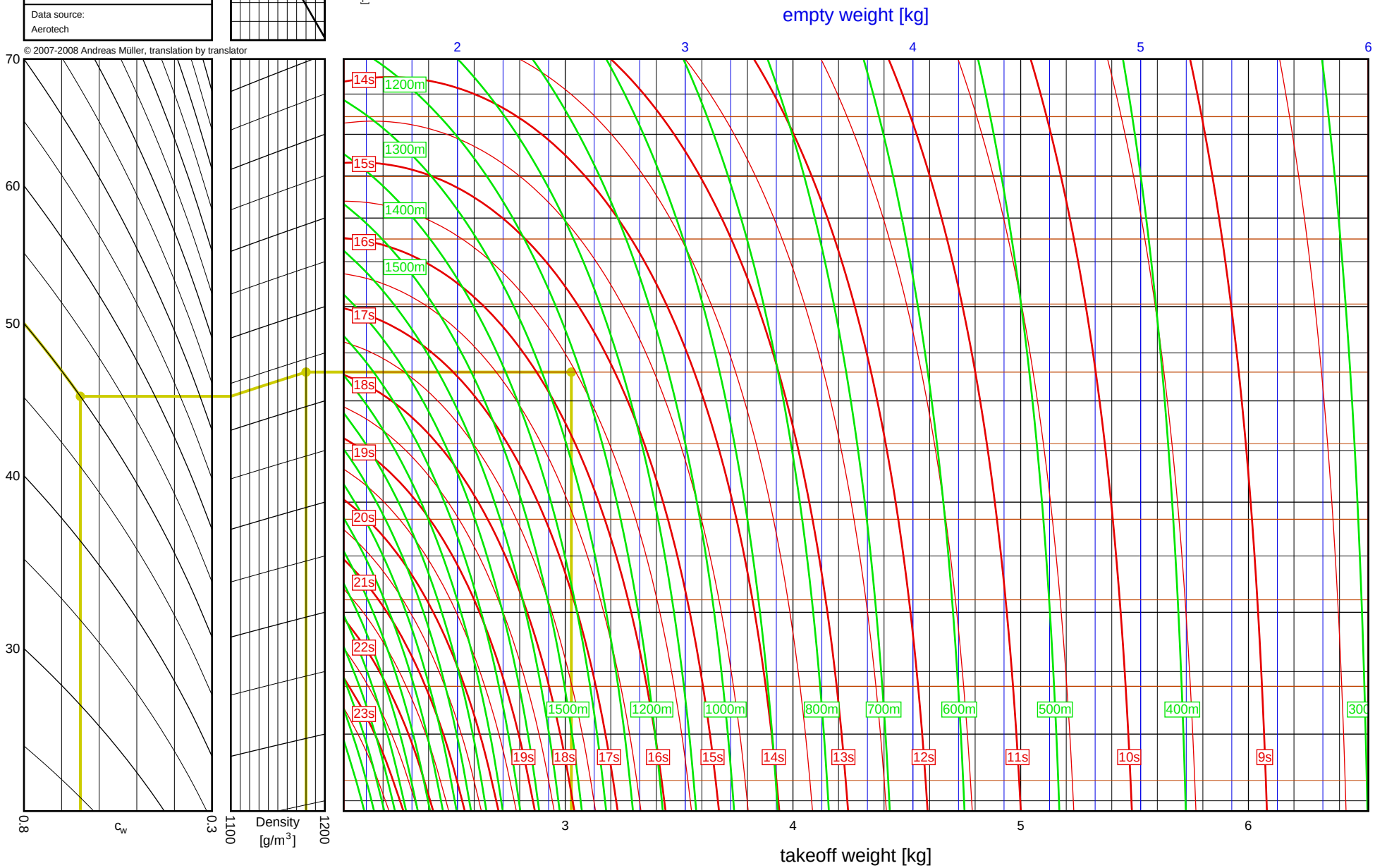
I_{tot}	=	517.4 Ns
F_{avg}	=	369.6 N
t_{burn}	=	1.40 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.027kg
Results: time to apogee: 15.6s, expected altitude: 1223m

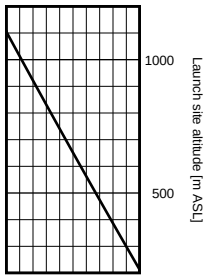


Aerotech

I284W

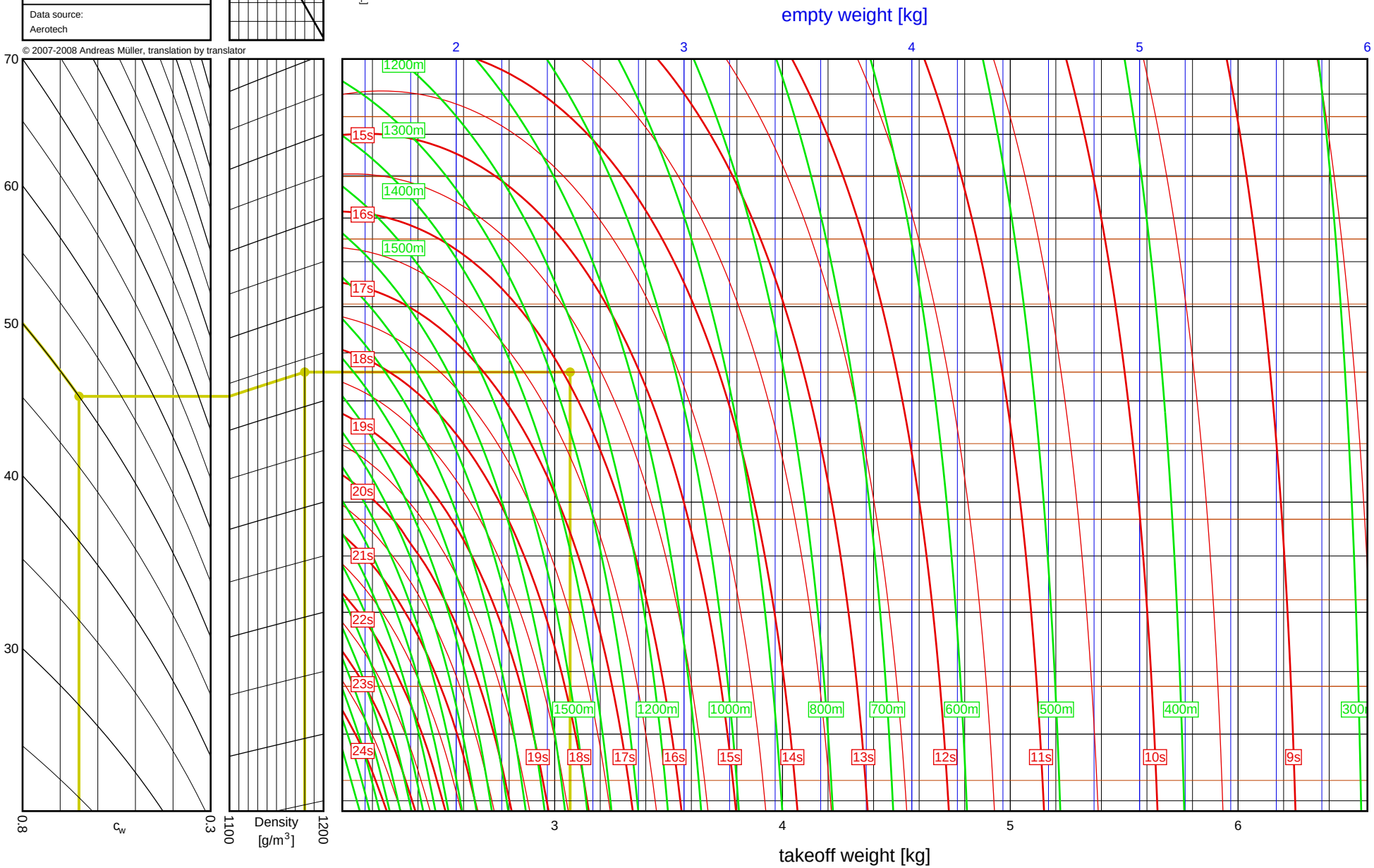
I_{tot}	=	529.8 Ns
F_{avg}	=	294.4 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.068kg
Results: time to apogee: 15.9s, expected altitude: 1248m



I284W

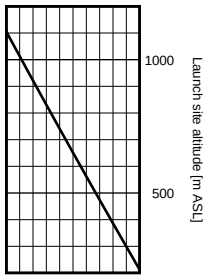
2", I-J

I284W

Aerotech I366R

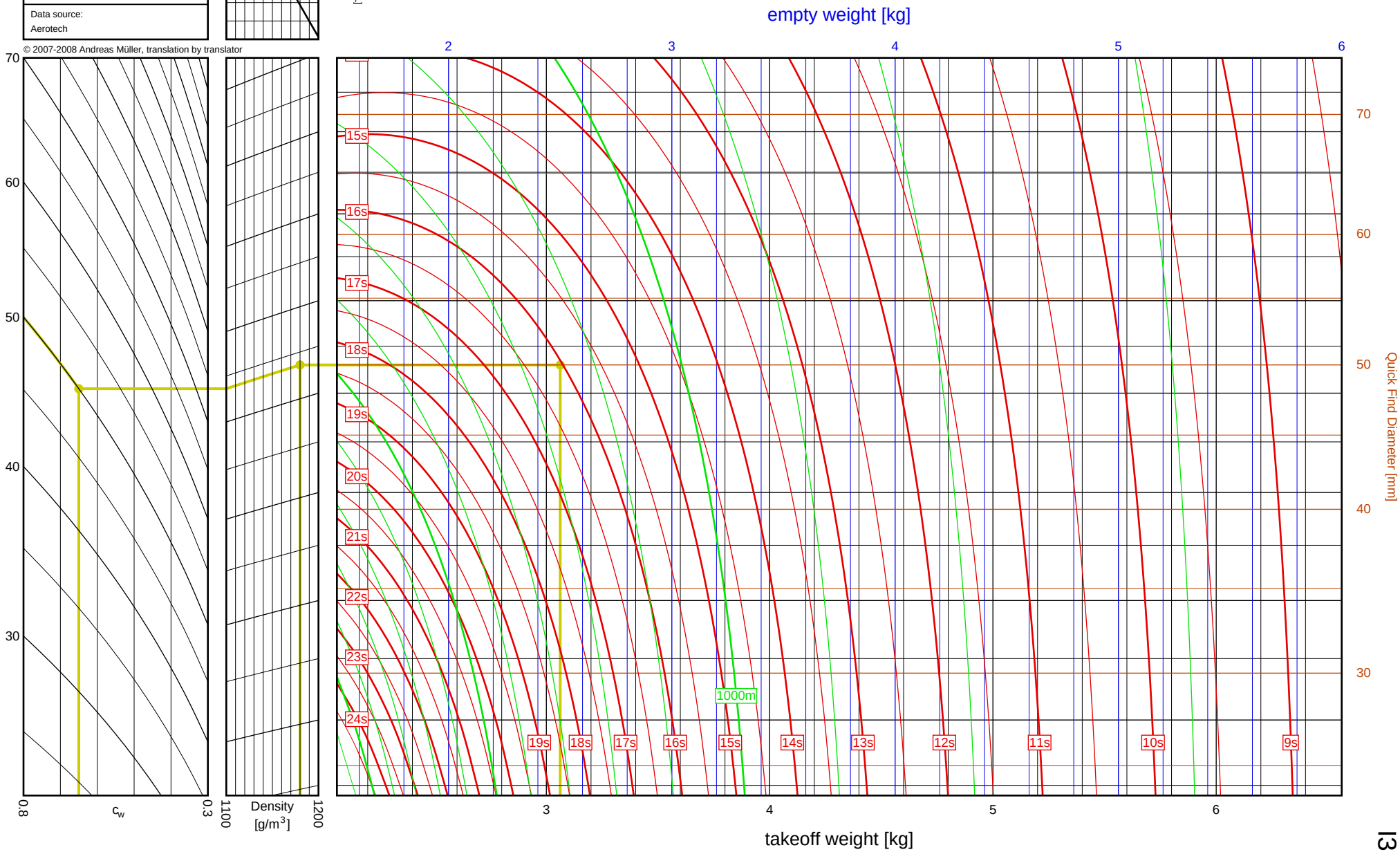
I_{tot}	=	537.1 Ns
F_{avg}	=	358.0 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.062kg
Results: time to apogee: 16.0s, expected altitude: 1291m

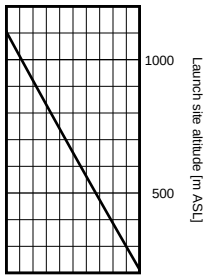


Aerotech

I364FJ

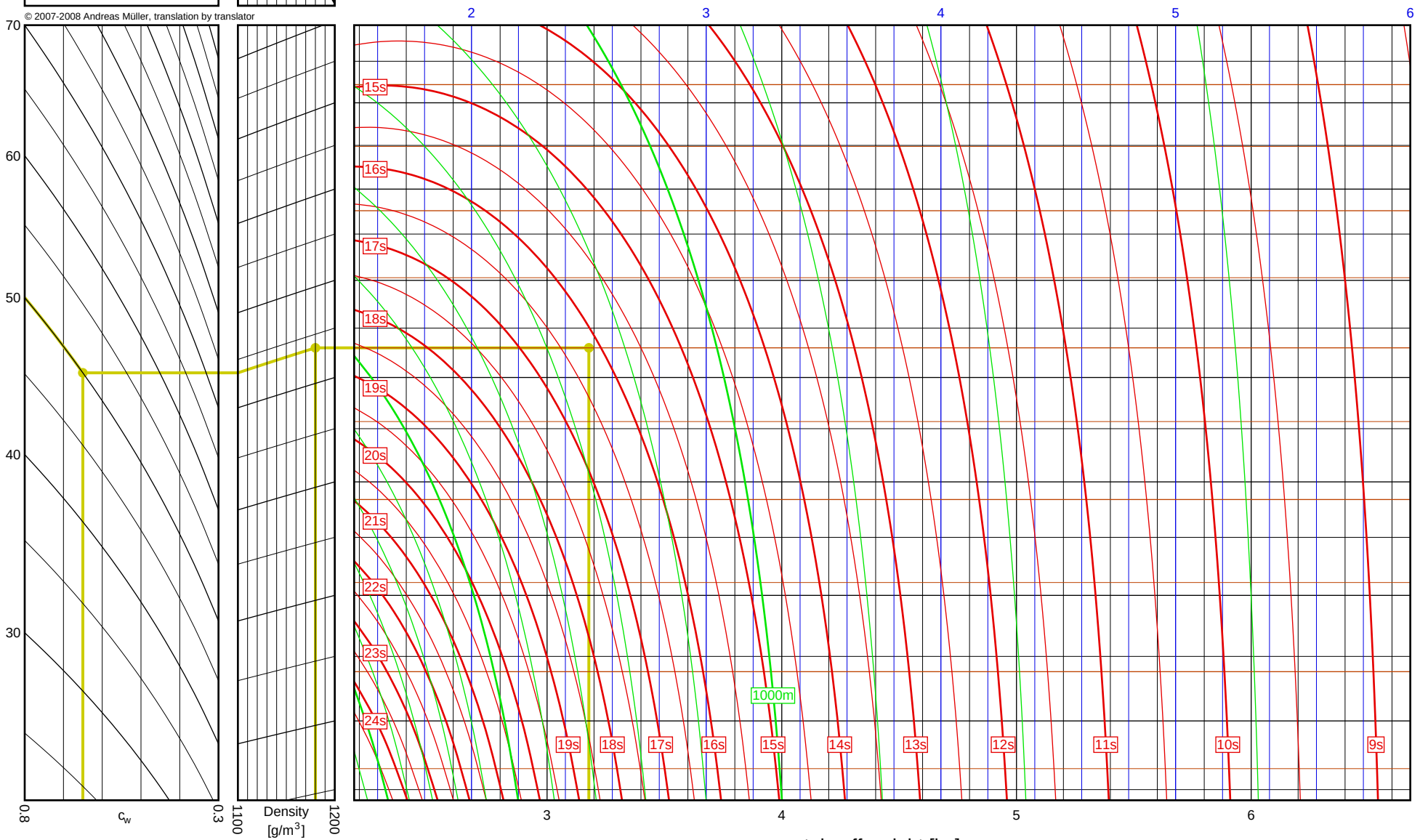
I_{tot}	=	551.2 Ns
F_{avg}	=	324.2 N
t_{burn}	=	1.70 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.178kg
Results: time to apogee: 16.2s, expected altitude: 1289m



S-17

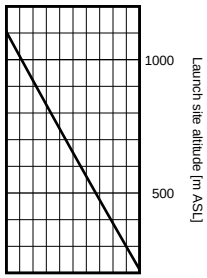
I364FJ

I364FJ

Aerotech I65W

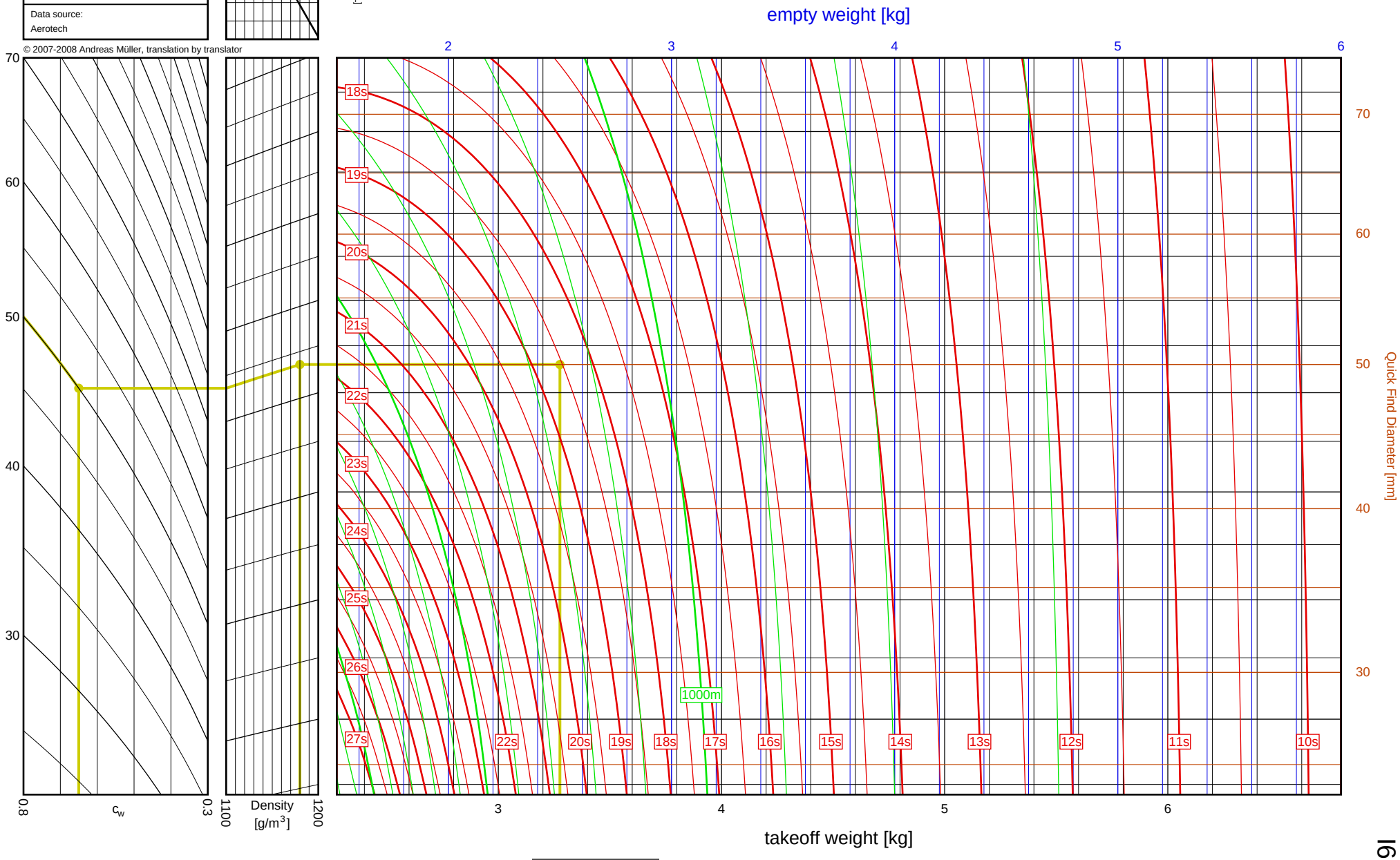
I_{tot}	=	630.5 Ns
F_{avg}	=	76.3 N
t_{burn}	=	8.26 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.276kg
Results: time to apogee: 18.5s, expected altitude: 1297m

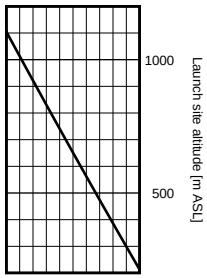


Aerotech

I600R

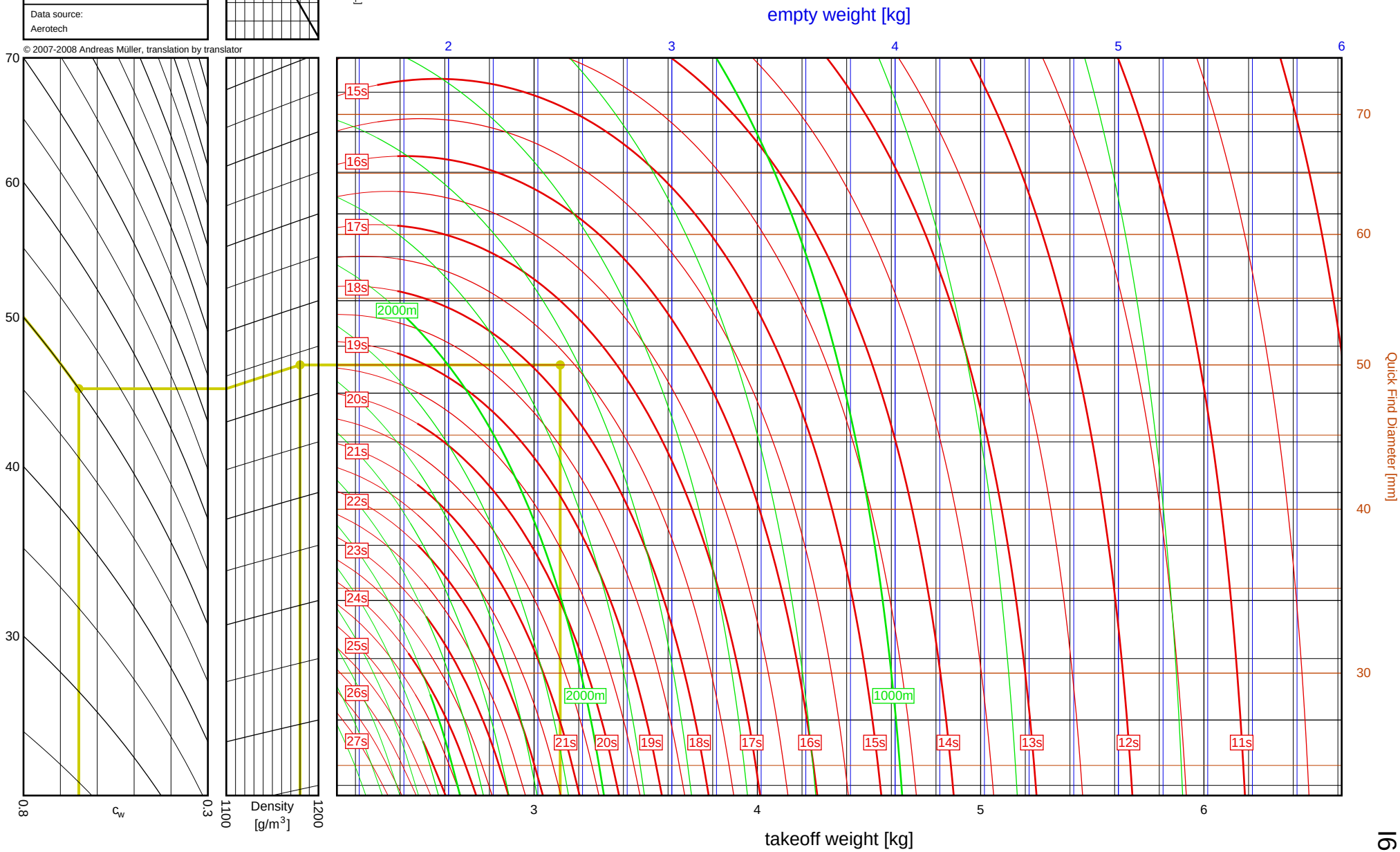
I_{tot}	=	640.1 Ns
F_{avg}	=	542.5 N
t_{burn}	=	1.18 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

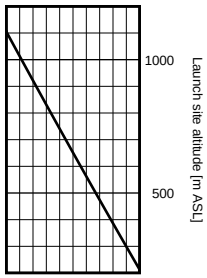
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.117kg
Results: time to apogee: 17.7s, expected altitude: 1654m



Aerotech J350W.5

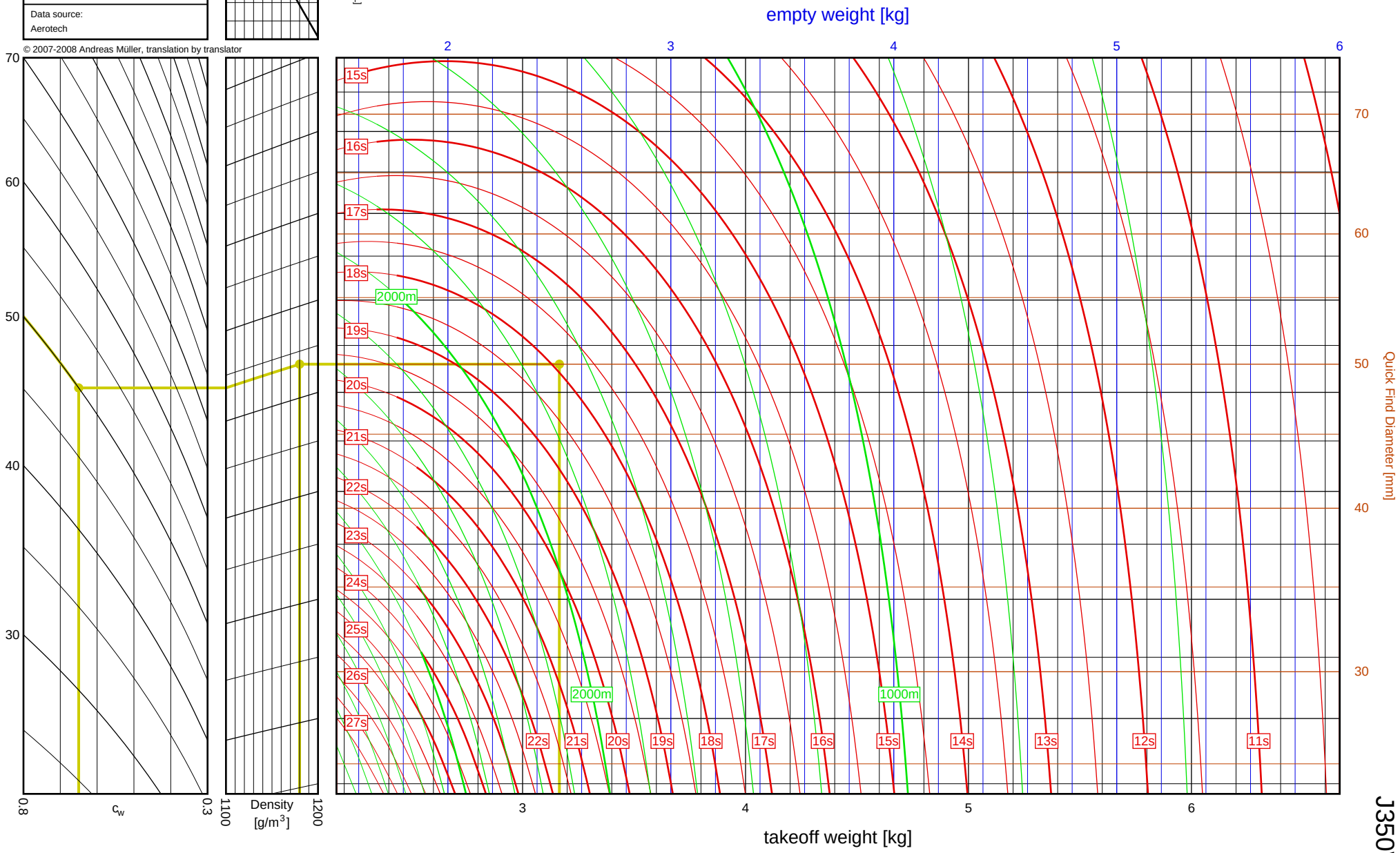
I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.165kg
Results: time to apogee: 17.9s, expected altitude: 1684m



J350W.5

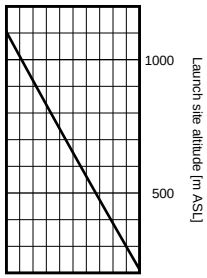
2", I-J

J350W.5

Aerotech J420R

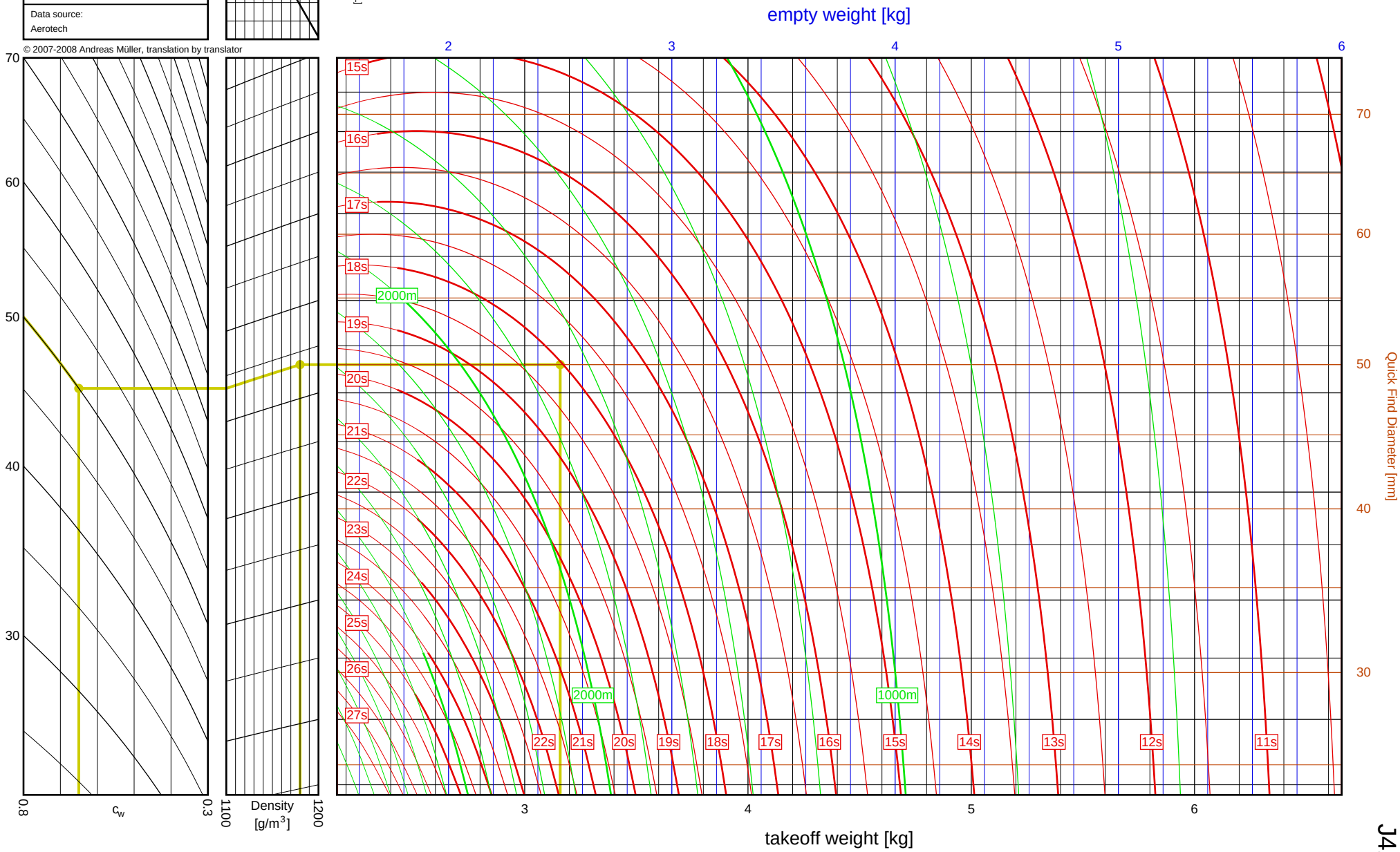
I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

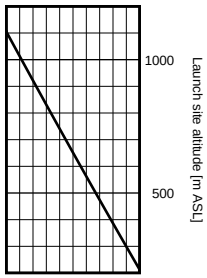
Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.159kg
Results: time to apogee: 18.0s, expected altitude: 1685m



Aerotech J350W

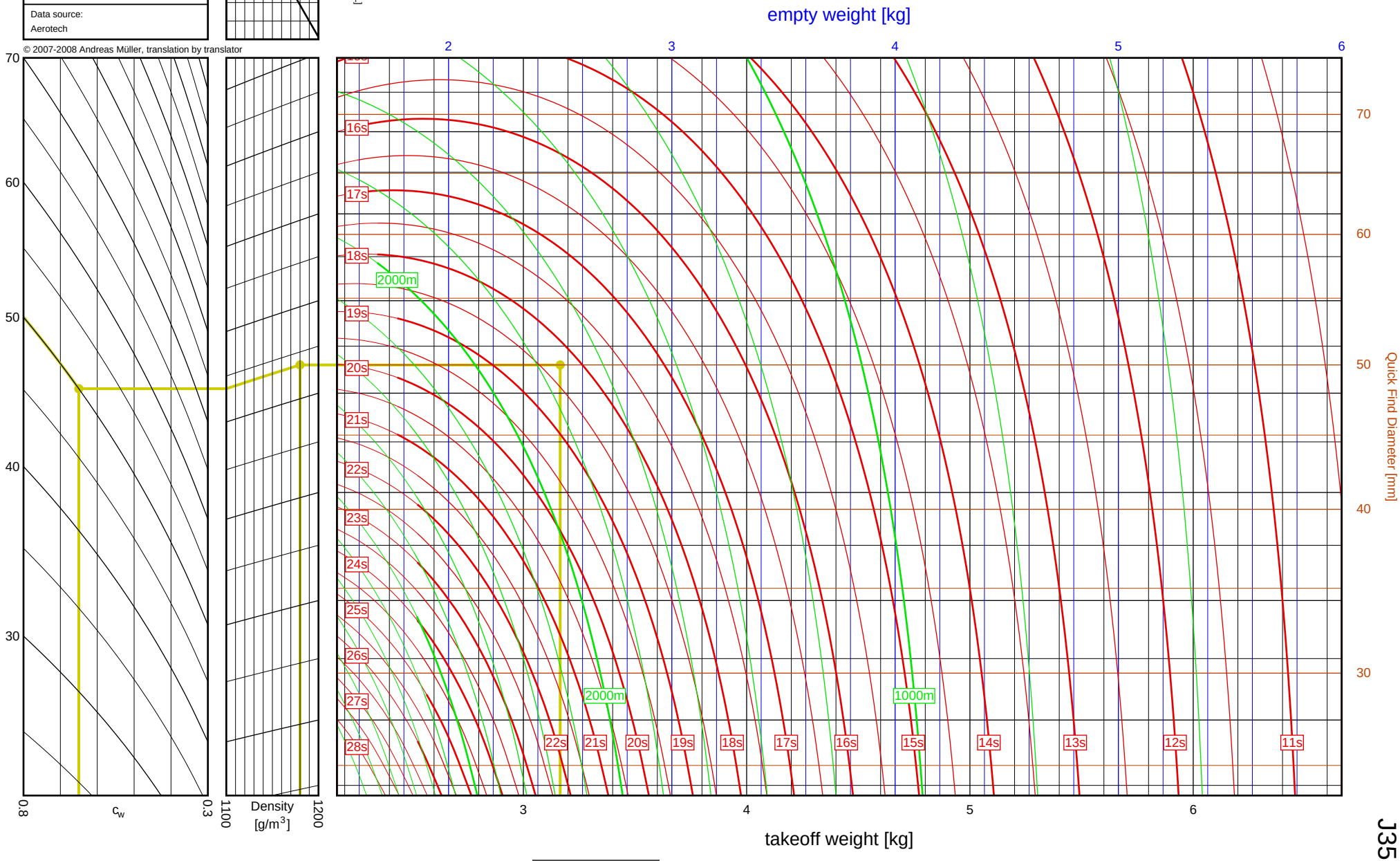
I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.165kg
Results: time to apogee: 18.3s, expected altitude: 1729m



J350W

2", I-J

J350W

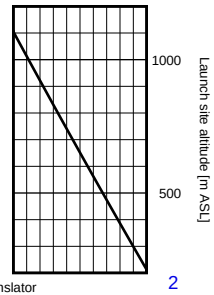
Aerotech I357T

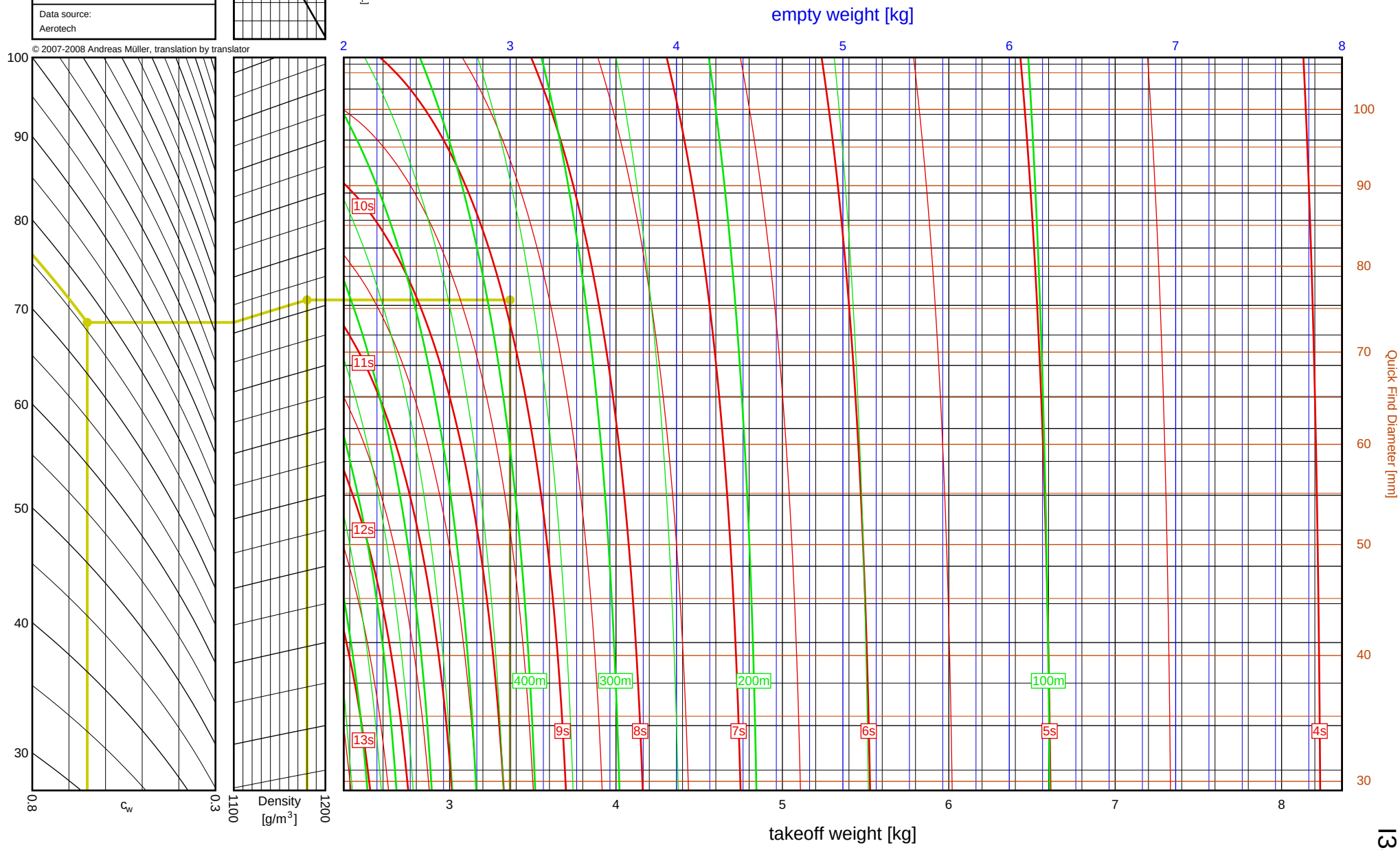
I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.363kg
Results: time to apogee: 8.9s, expected altitude: 374m



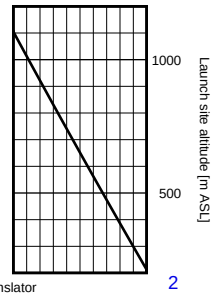


Aerotech

I218R

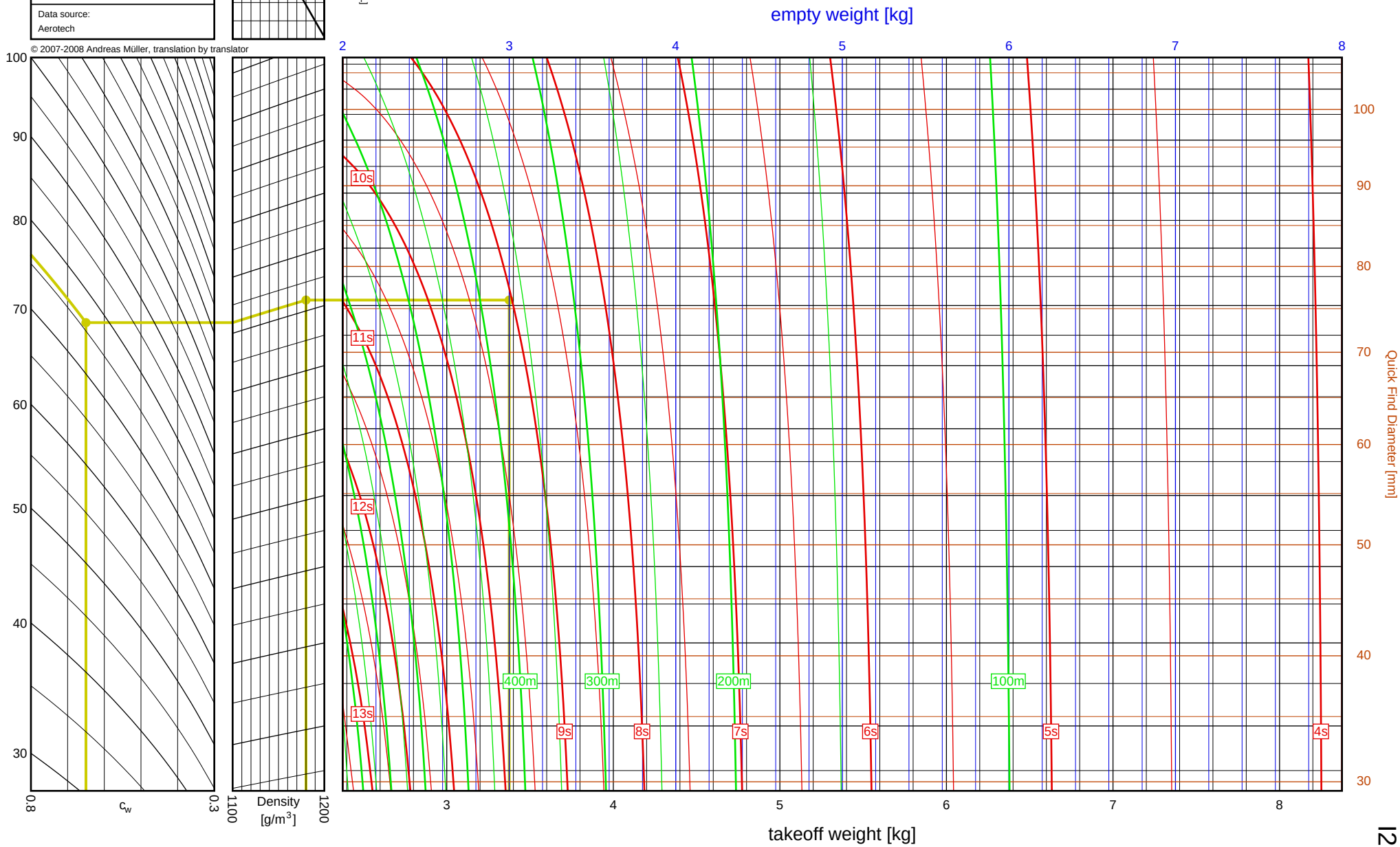
I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.375kg
Results: time to apogee: 9.0s, expected altitude: 365m



6-2

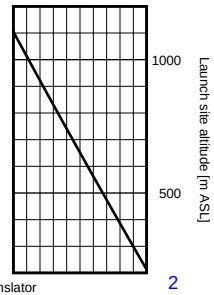
I218R

I218R

Aerotech I161W

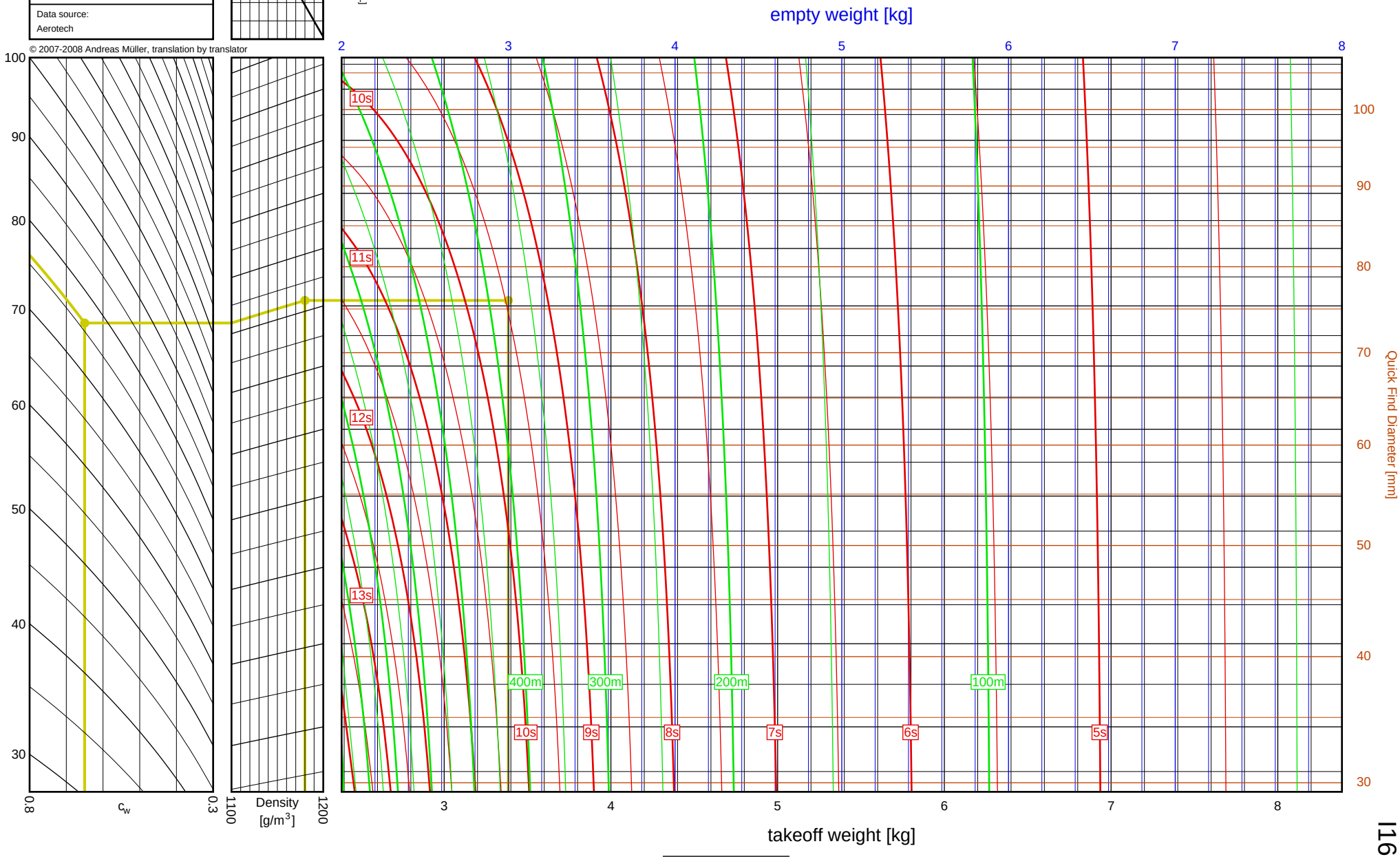
I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.385kg
Results: time to apogee: 9.5s, expected altitude: 376m



6-3

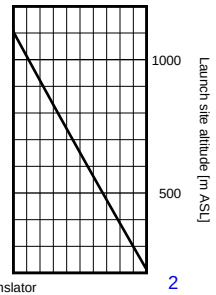
I161W

I161W

Aerotech I245G

I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

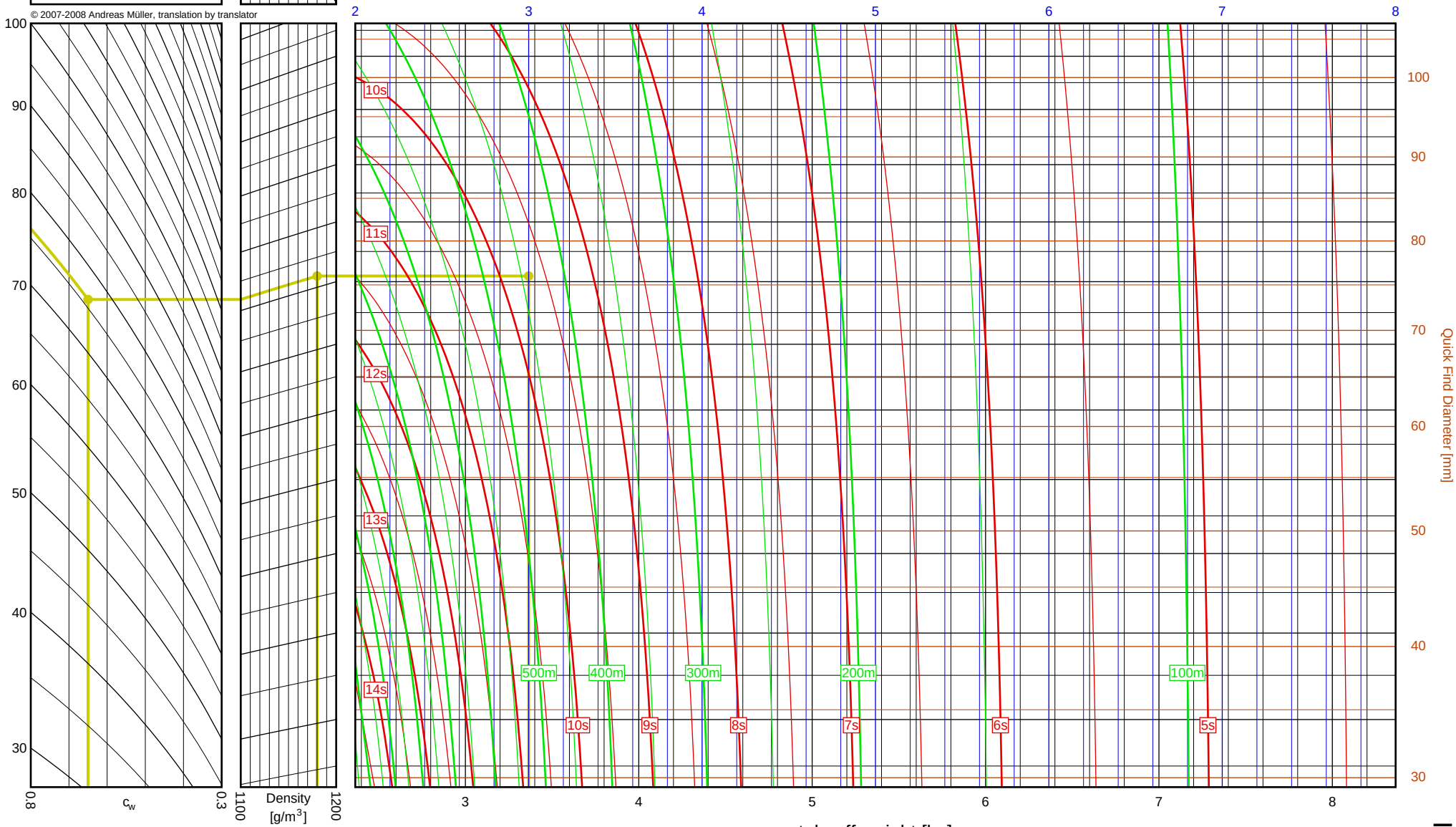
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.365kg
Results: time to apogee: 9.7s, expected altitude: 441m

empty weight [kg]



I245G

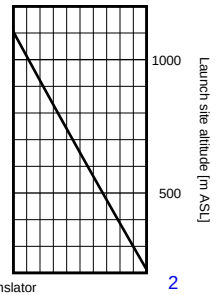
Aerotech I117FJ

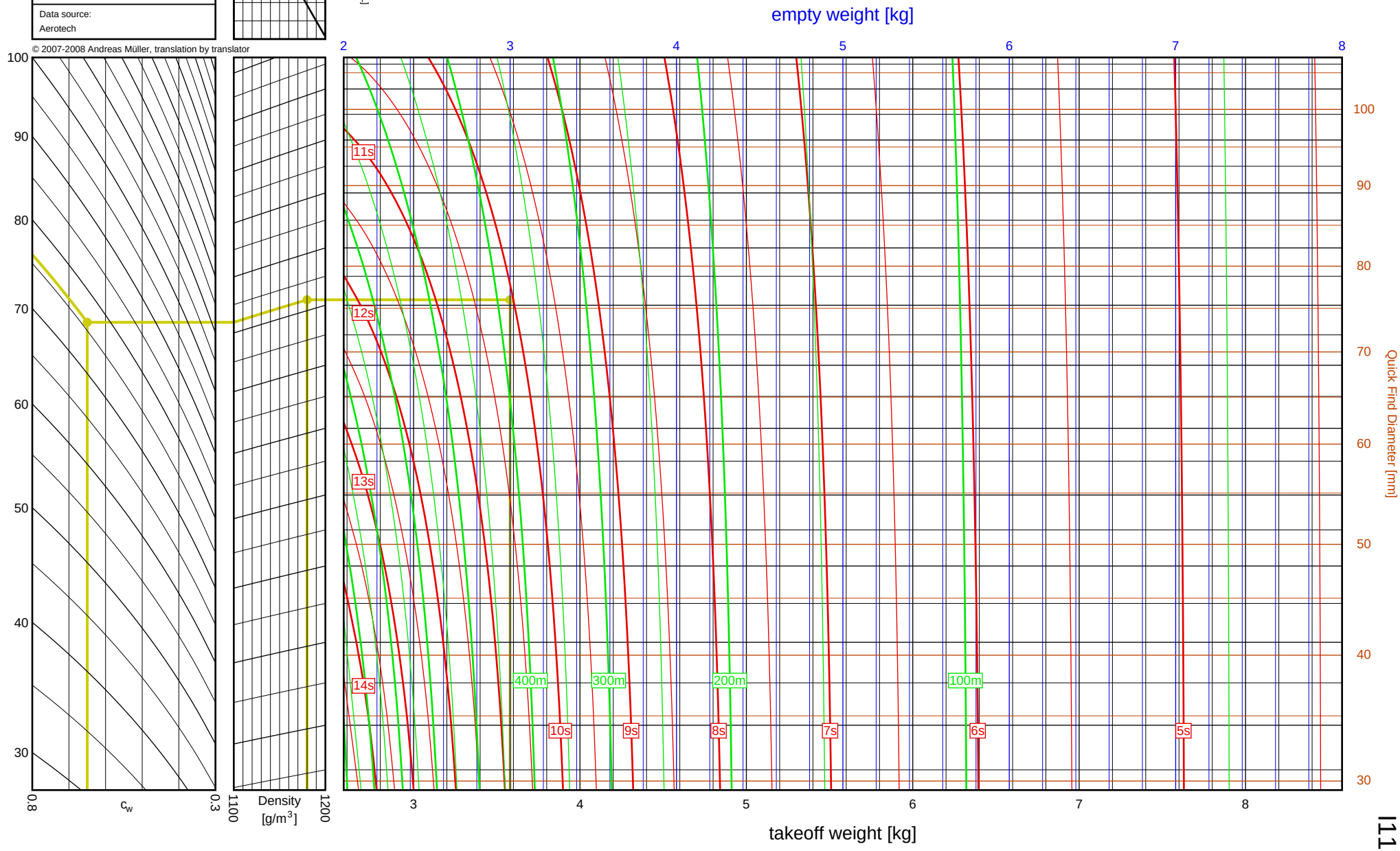
I_{tot}	=	365.5 Ns
F_{avg}	=	130.3 N
t_{burn}	=	2.81 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.580kg
Results: time to apogee: 10.0s, expected altitude: 384m

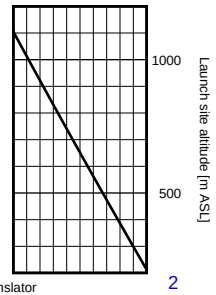




Aerotech I225FJ

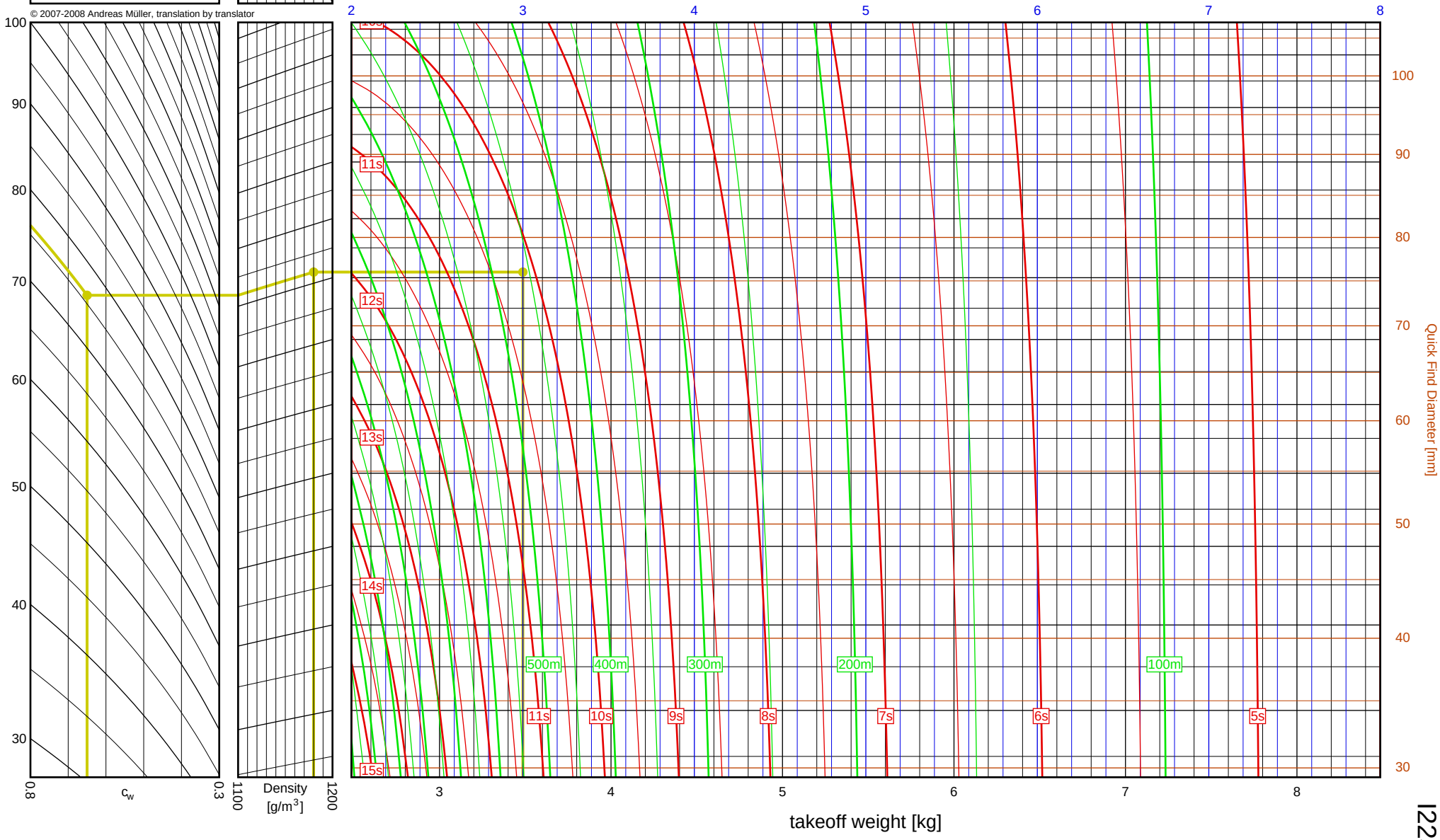
I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.486kg
Results: time to apogee: 10.1s, expected altitude: 458m



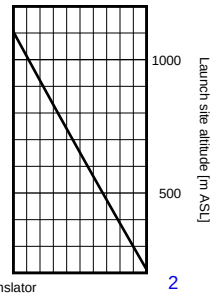
Aerotech I154J

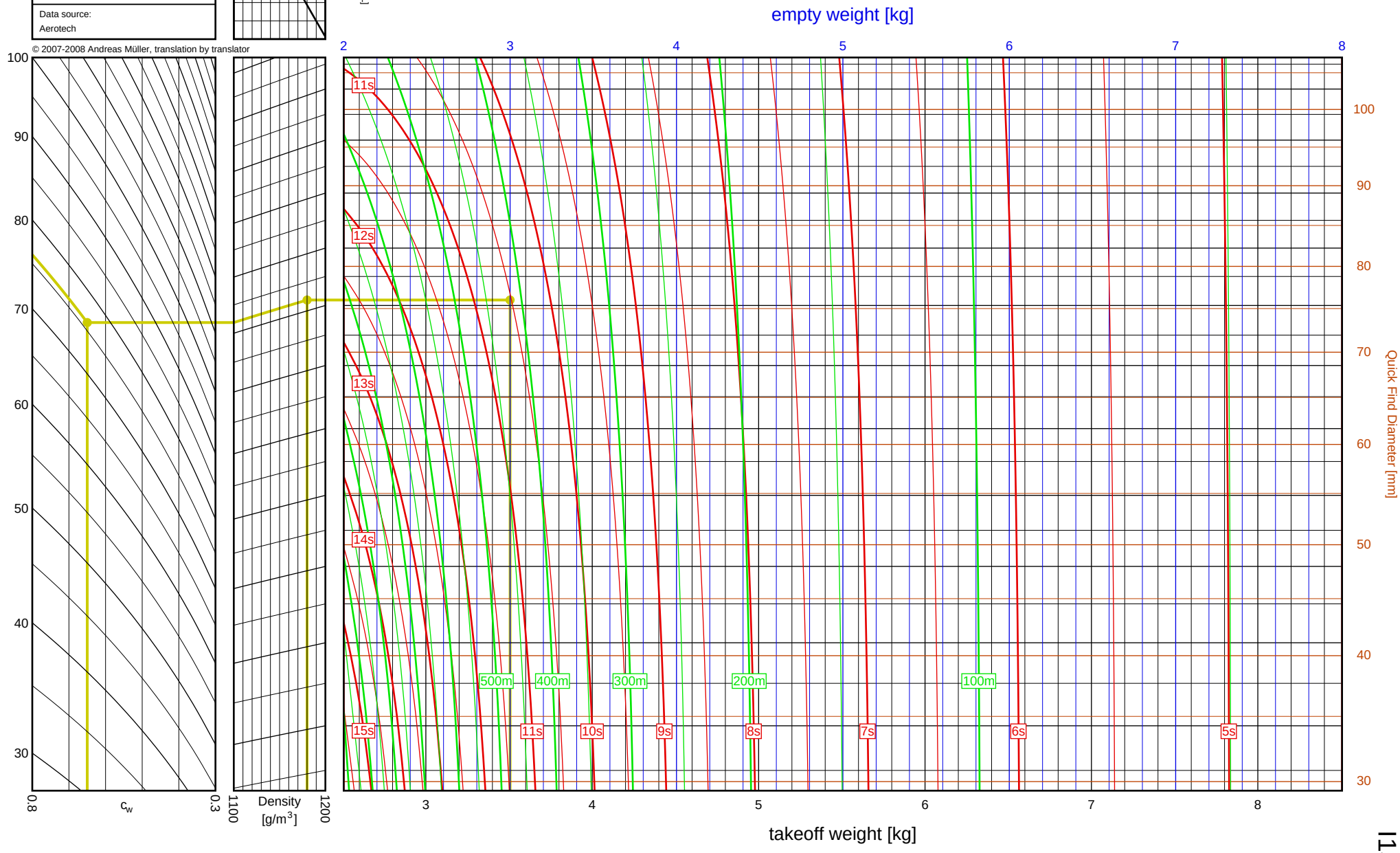
I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.506kg
Results: time to apogee: 10.5s, expected altitude: 416m





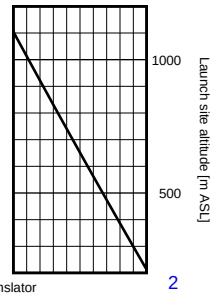
Aerotech I215R

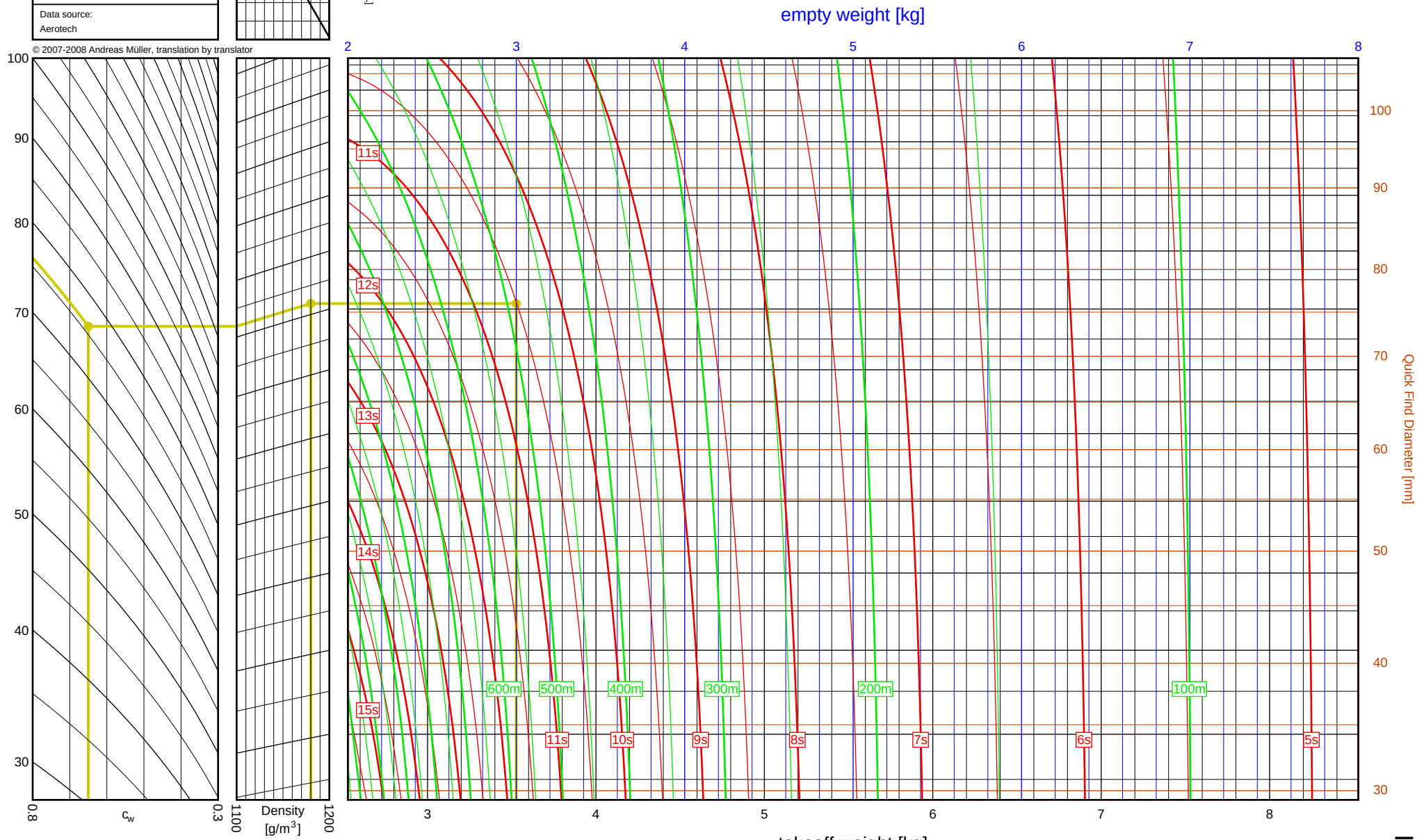
I_{tot}	=	396.9 Ns
F_{avg}	=	213.5 N
t_{burn}	=	1.86 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.527kg
Results: time to apogee: 10.5s, expected altitude: 488m

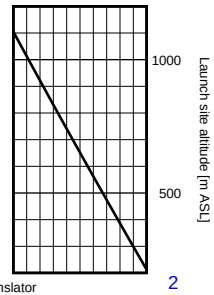




Aerotech I599N

I_{tot}	=	404.7 Ns
F_{avg}	=	649.6 N
t_{burn}	=	0.62 s
d	=	54 mm

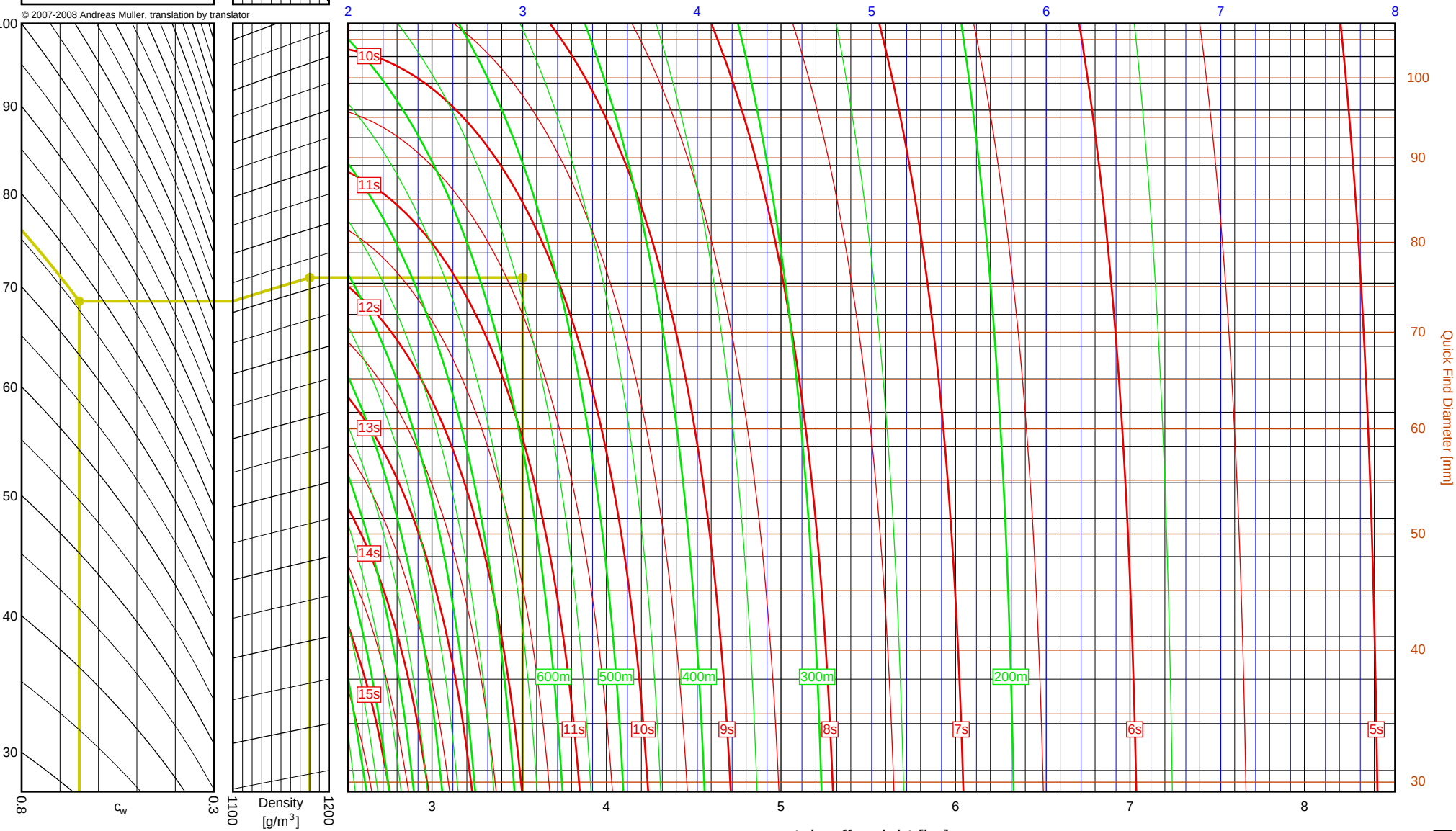
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.520kg
Results: time to apogee: 10.3s, expected altitude: 542m

empty weight [kg]



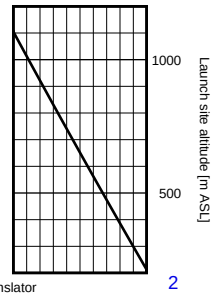
Aerotech I115W

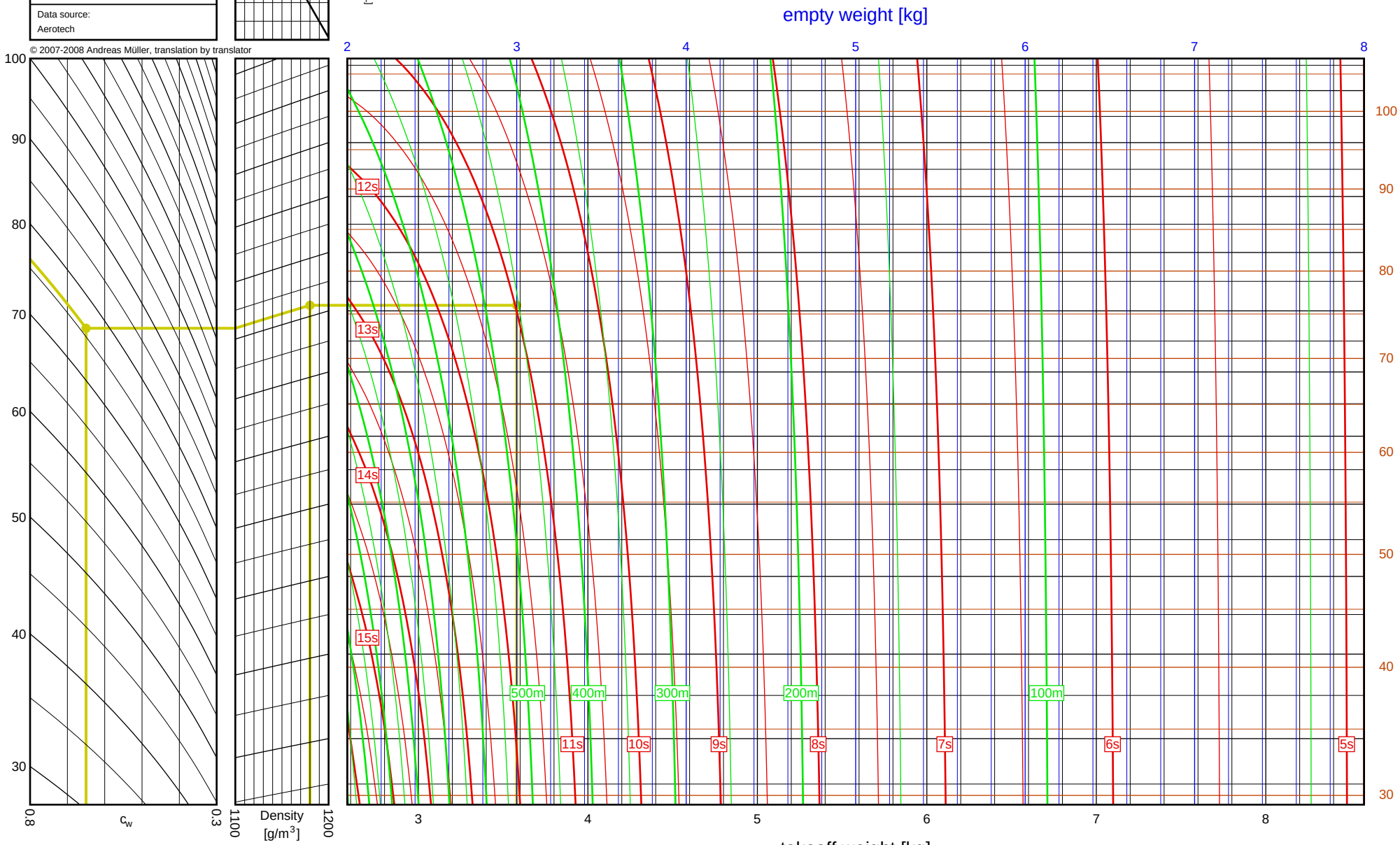
I_{tot}	=	408.8 Ns
F_{avg}	=	116.3 N
t_{burn}	=	3.51 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.580kg
Results: time to apogee: 11.0s, expected altitude: 453m





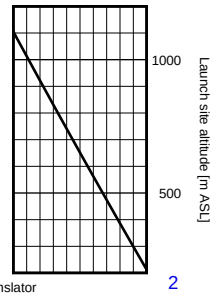
Aerotech I300T

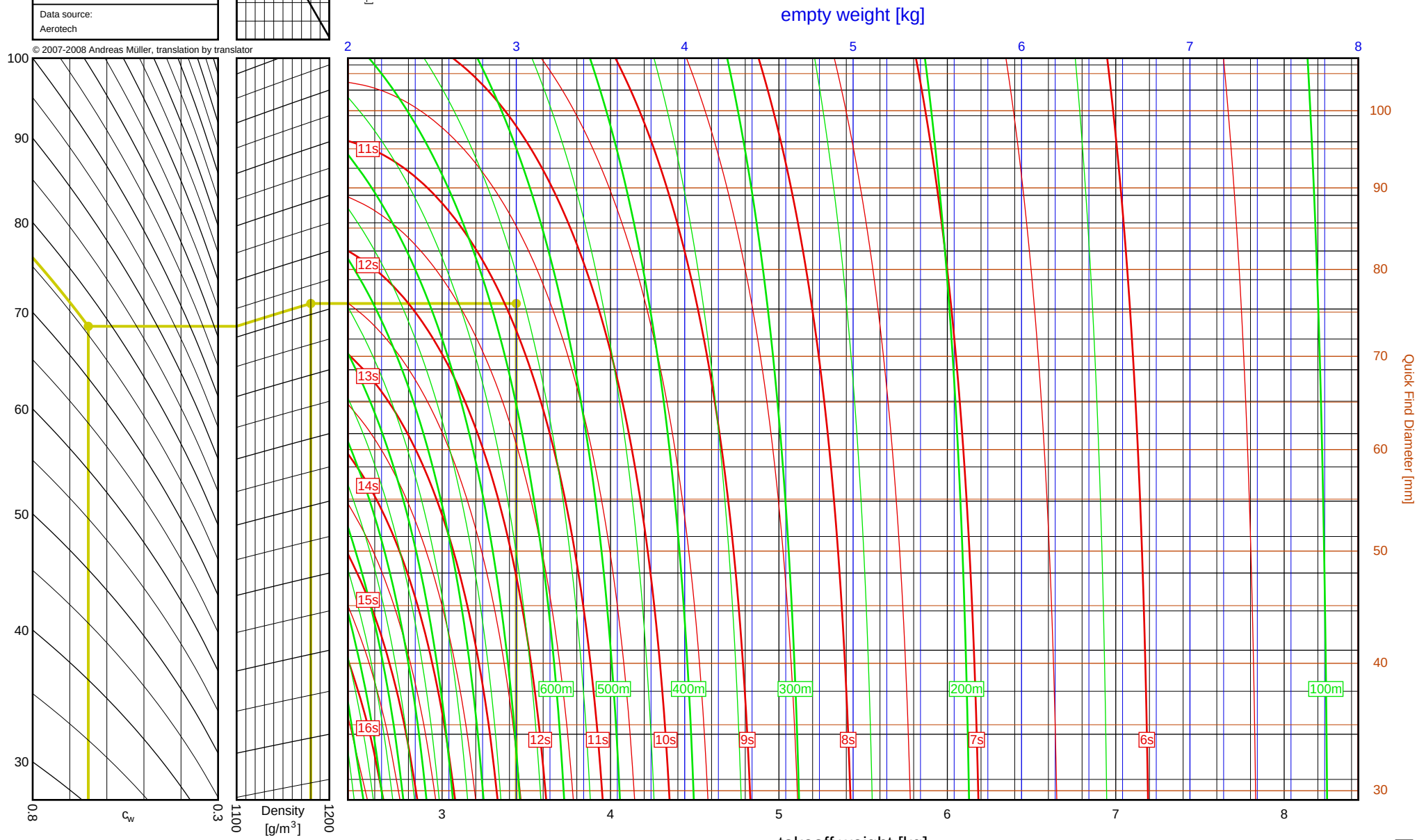
I_{tot}	=	413.1 Ns
F_{avg}	=	258.2 N
t_{burn}	=	1.60 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.441kg
Results: time to apogee: 10.9s, expected altitude: 562m





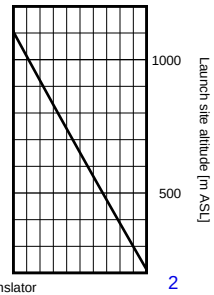
Aerotech I229T

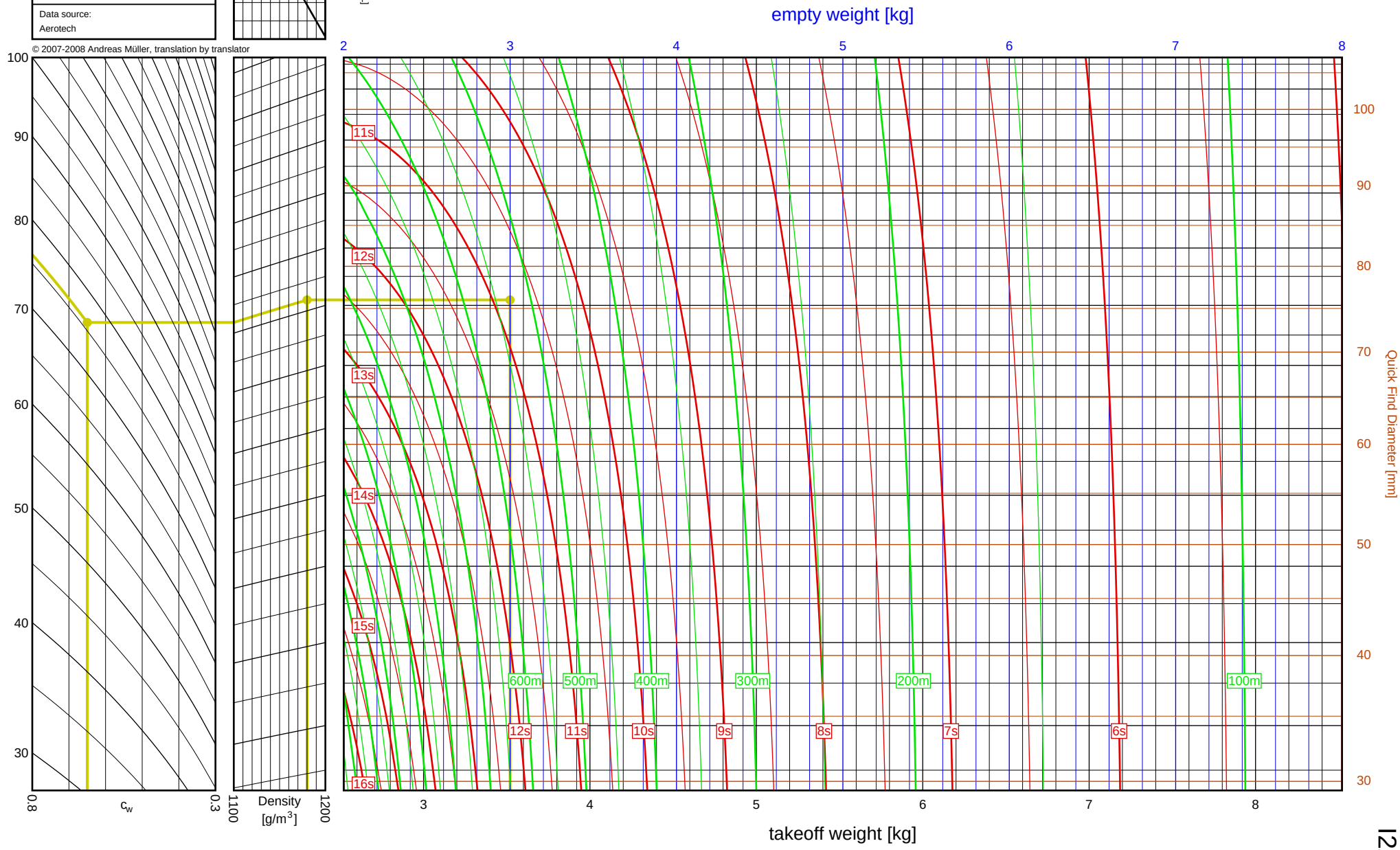
I_{tot}	=	413.7 Ns
F_{avg}	=	239.1 N
t_{burn}	=	1.73 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.520kg
Results: time to apogee: 10.8s, expected altitude: 529m





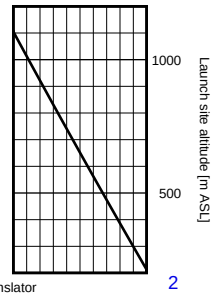
Aerotech I285R

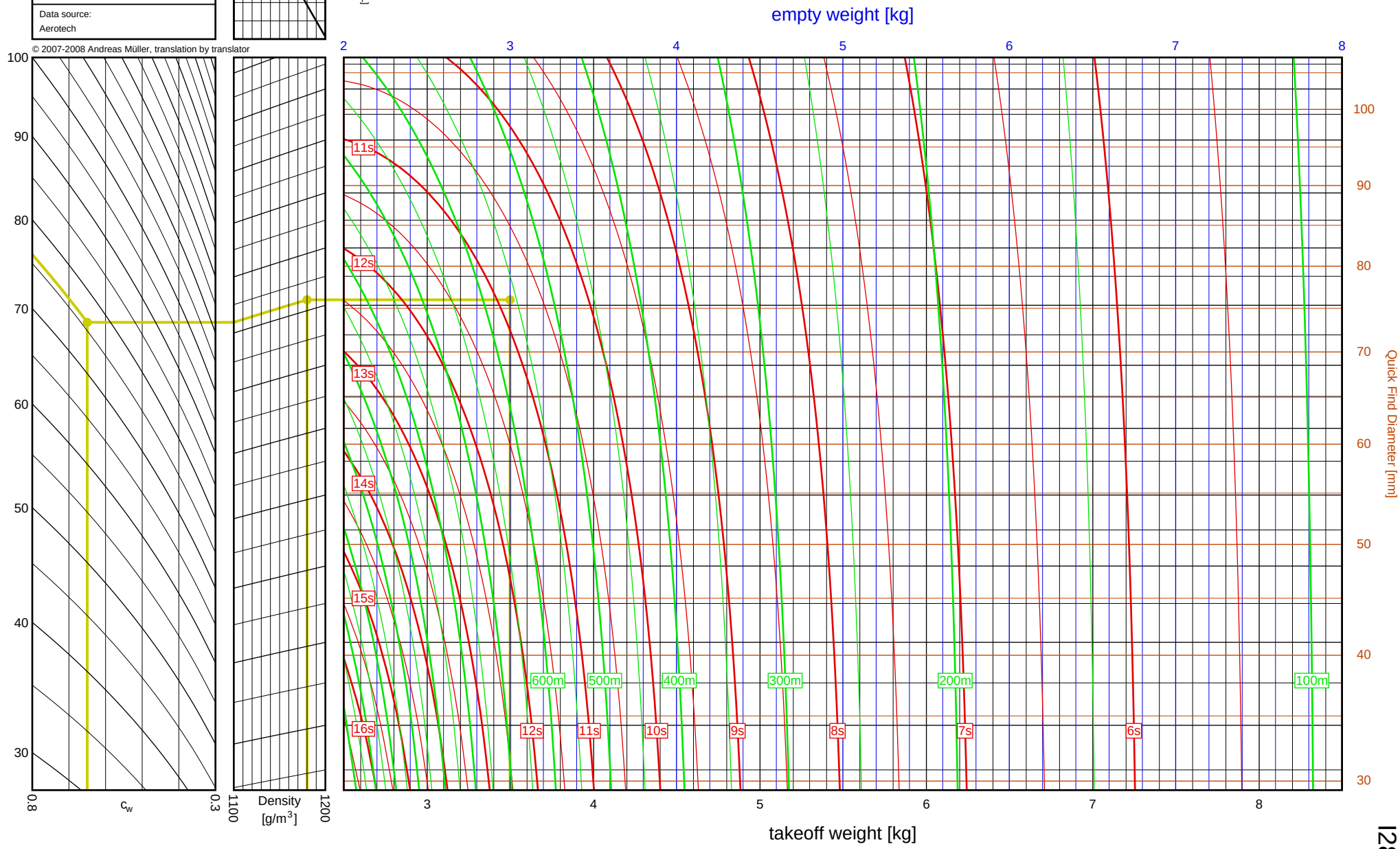
I_{tot}	=	415.0 Ns
F_{avg}	=	276.6 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.498kg
Results: time to apogee: 10.9s, expected altitude: 560m





6-13

I285R

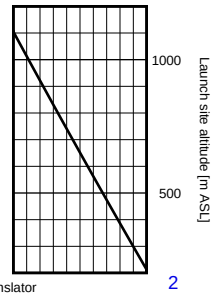
I285R

3", I-J

Aerotech I211W

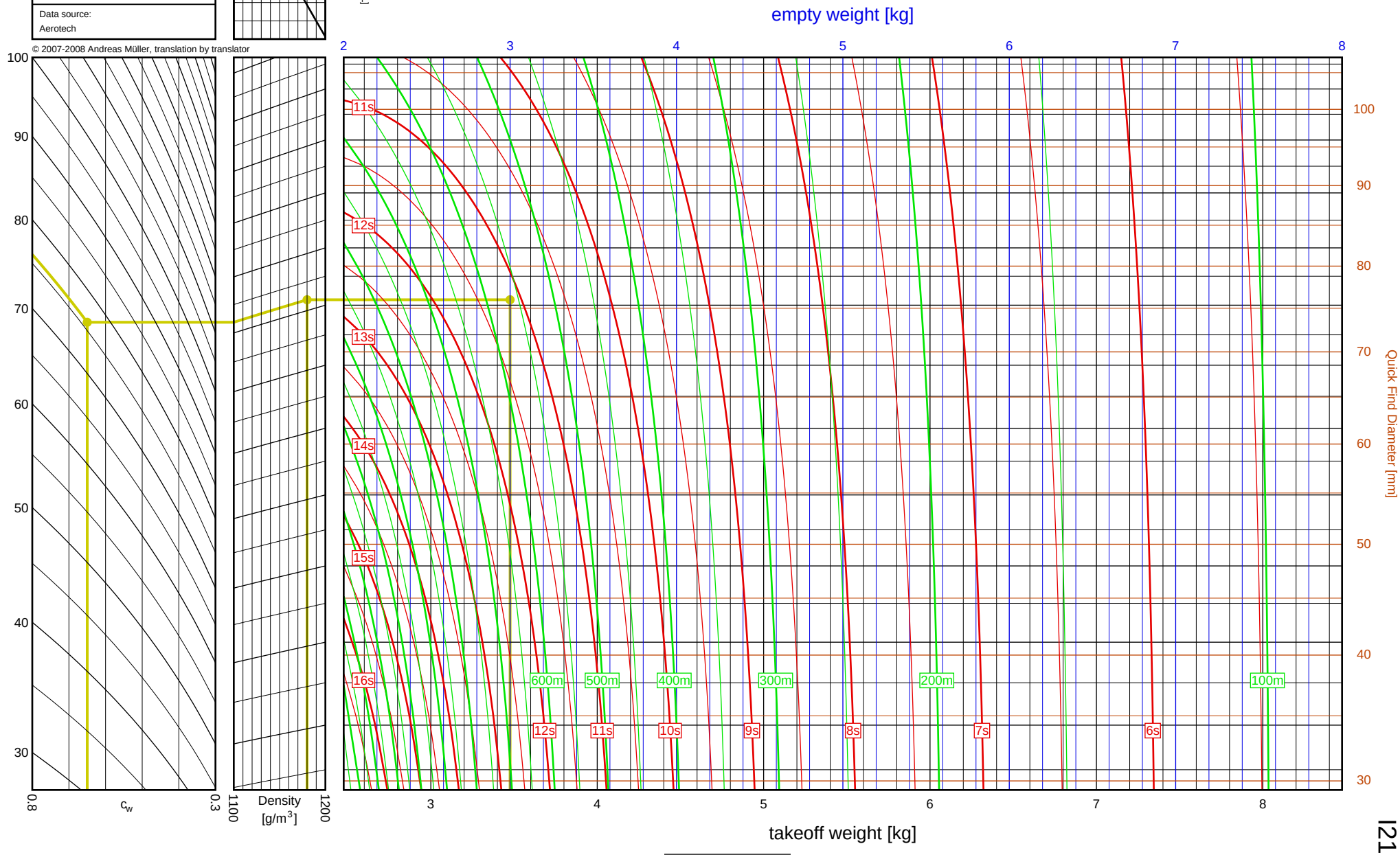
I_{tot}	=	421.2 Ns
F_{avg}	=	191.4 N
t_{burn}	=	2.20 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

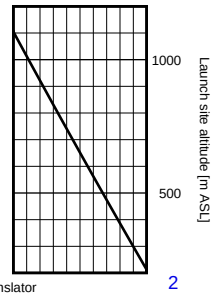
Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.476kg
Results: time to apogee: 11.1s, expected altitude: 563m



Aerotech I1299N

I_{tot}	=	424.4 Ns
F_{avg}	=	1248.4 N
t_{burn}	=	0.34 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.422kg
Results: time to apogee: 10.8s, expected altitude: 614m

empty weight [kg]

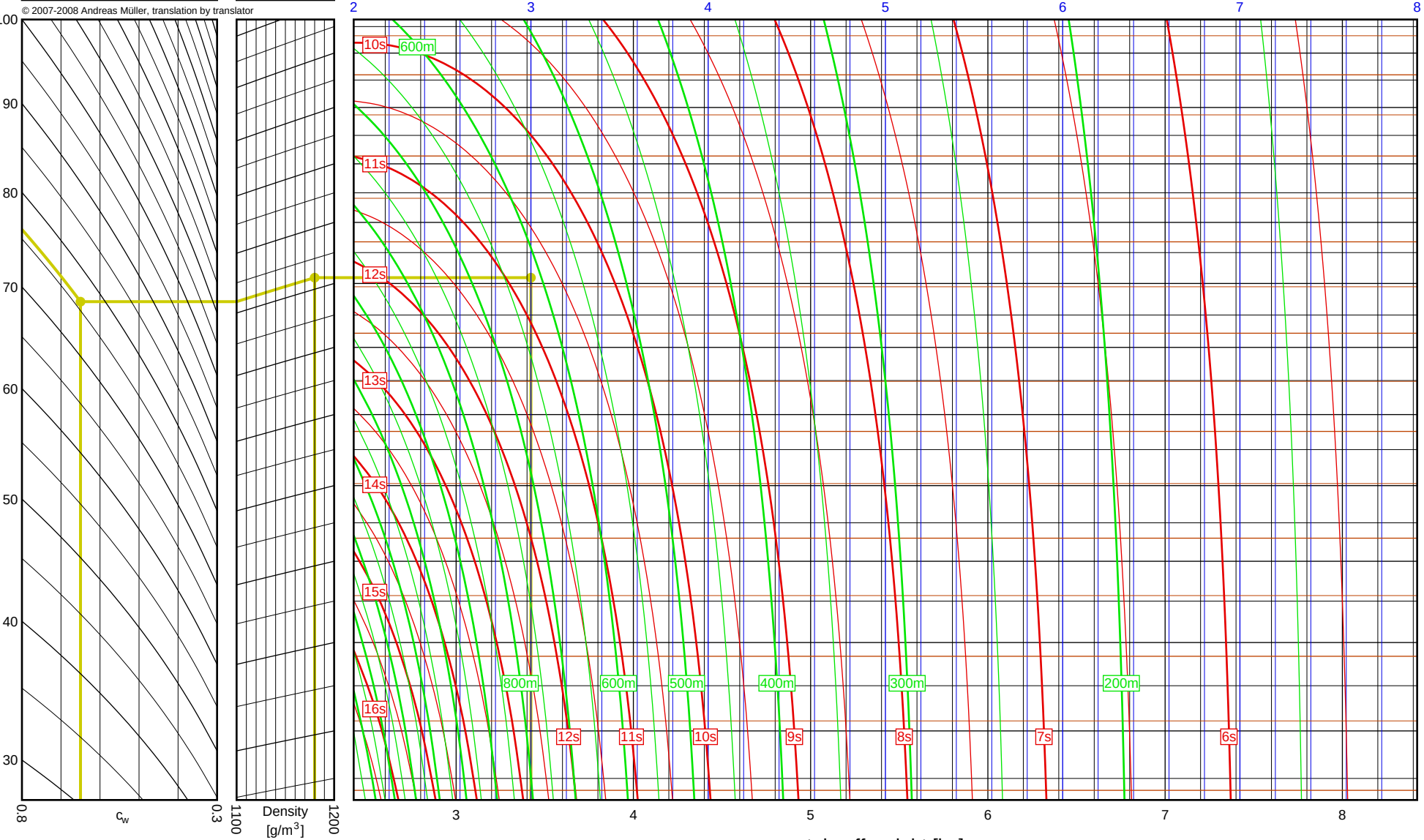
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

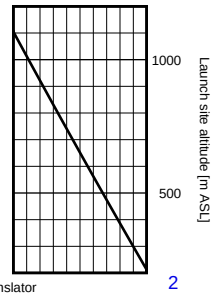
Density [g/m^3]



Aerotech I195J

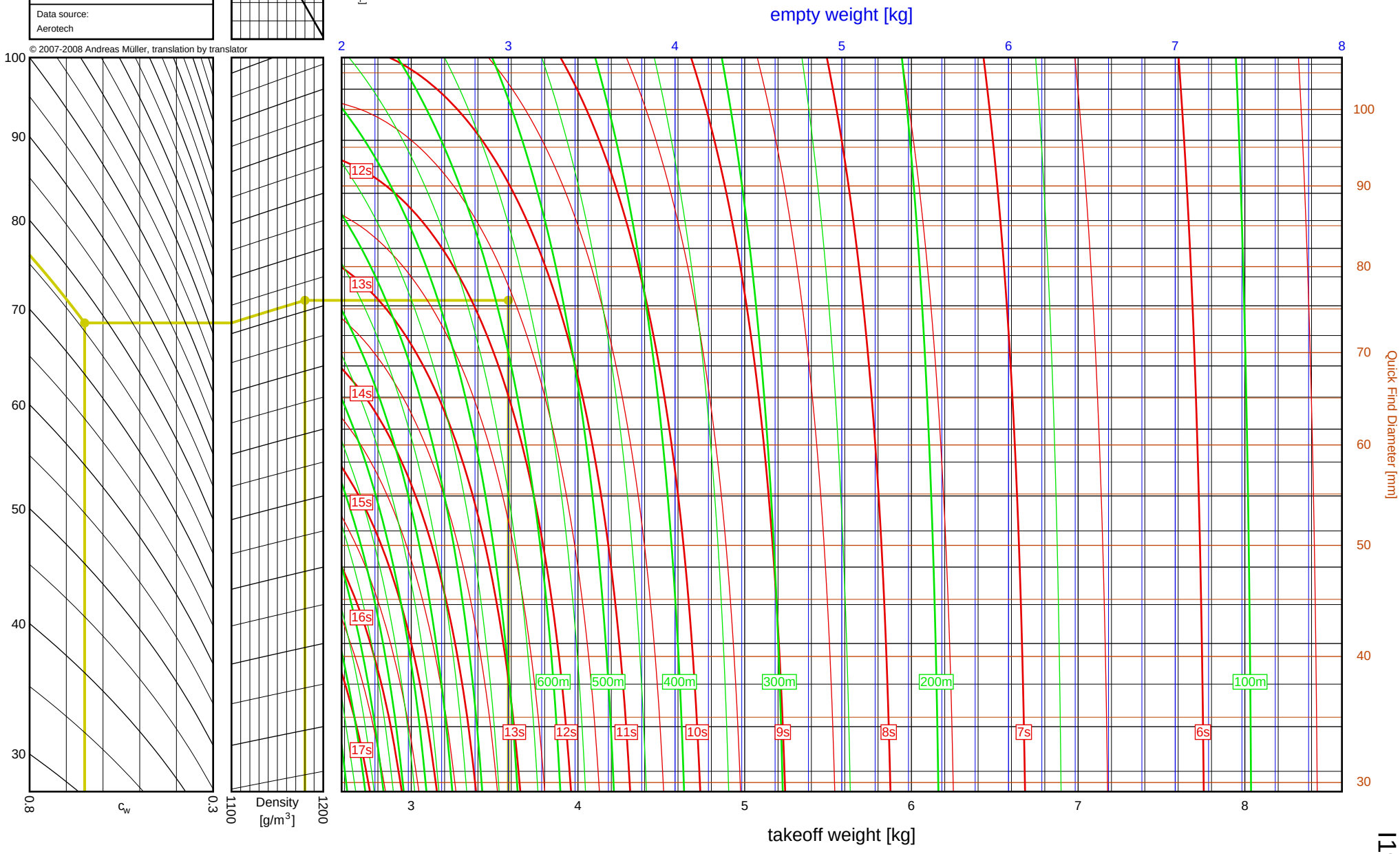
I_{tot}	=	443.0 Ns
F_{avg}	=	156.5 N
t_{burn}	=	2.83 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.582kg
Results: time to apogee: 11.6s, expected altitude: 580m



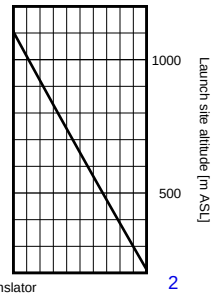
I195J

I195J

Aerotech I305FJ

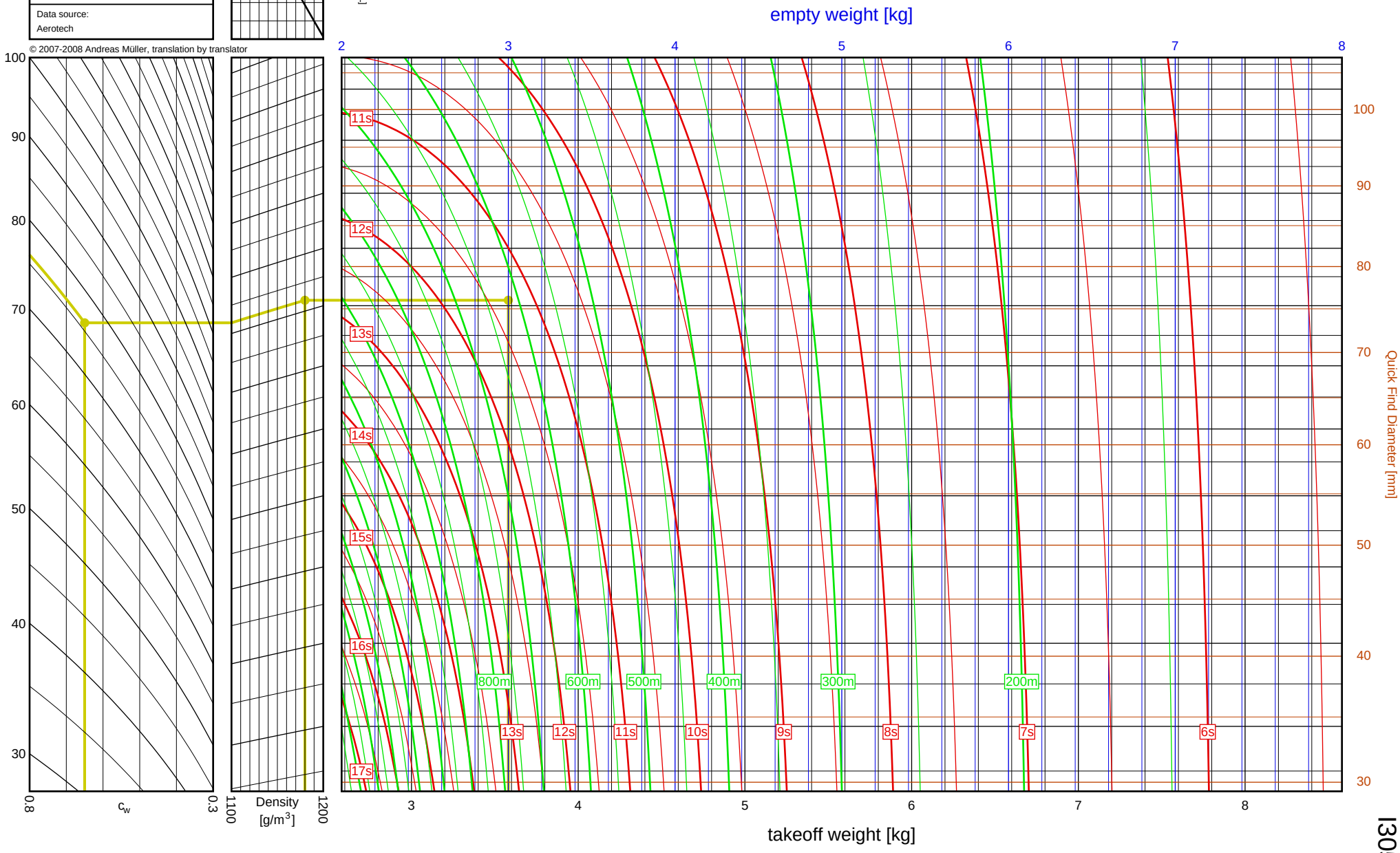
I_{tot}	=	443.9 Ns
F_{avg}	=	277.4 N
t_{burn}	=	1.60 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.581kg
Results: time to apogee: 11.3s, expected altitude: 615m



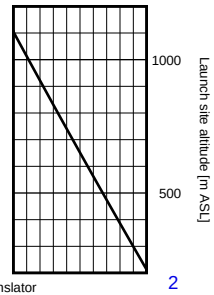
Aerotech I435T

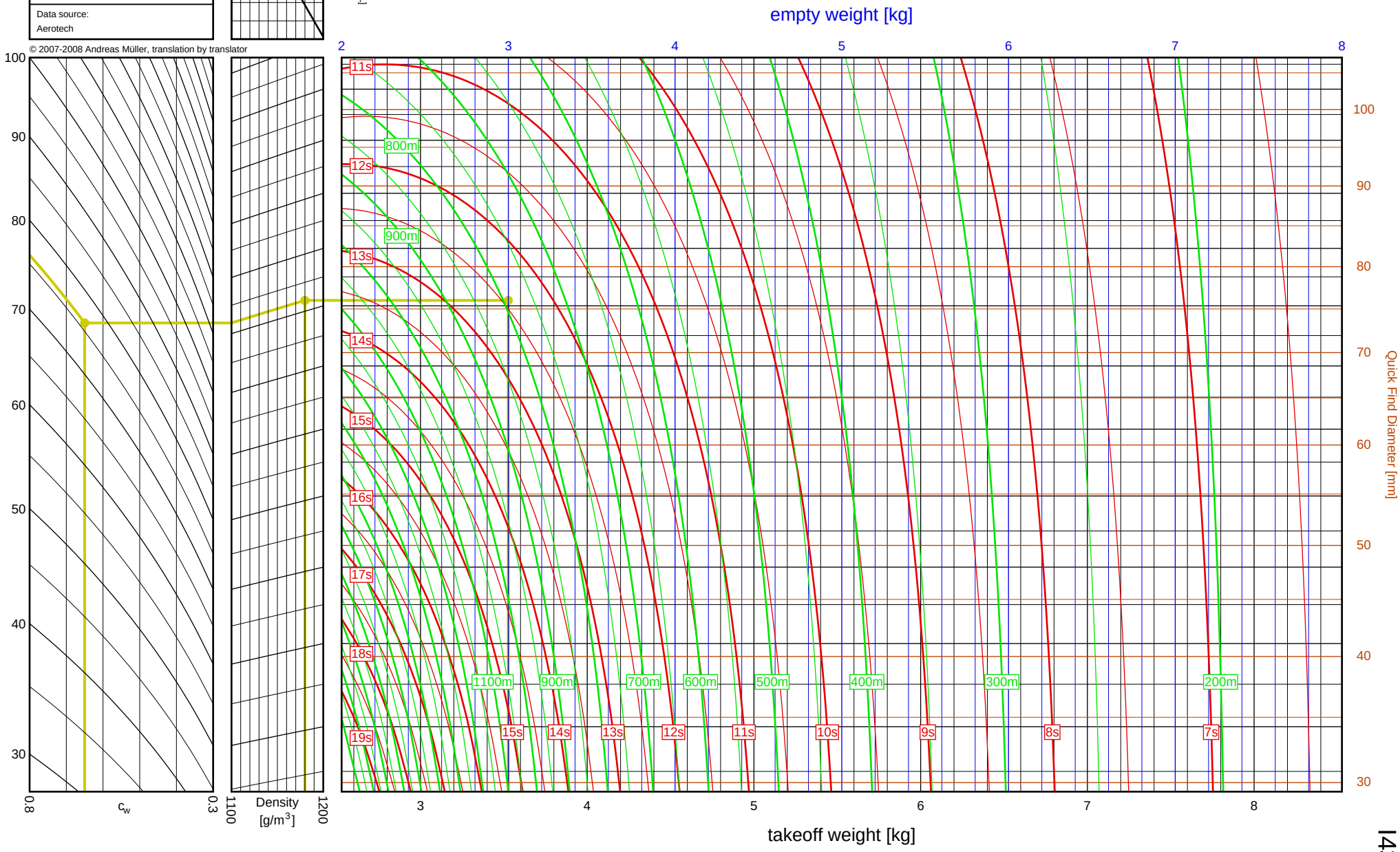
I_{tot}	=	517.4 Ns
F_{avg}	=	369.6 N
t_{burn}	=	1.40 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.527kg
Results: time to apogee: 12.4s, expected altitude: 792m





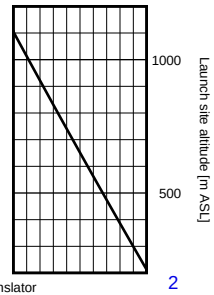
Aerotech I284W

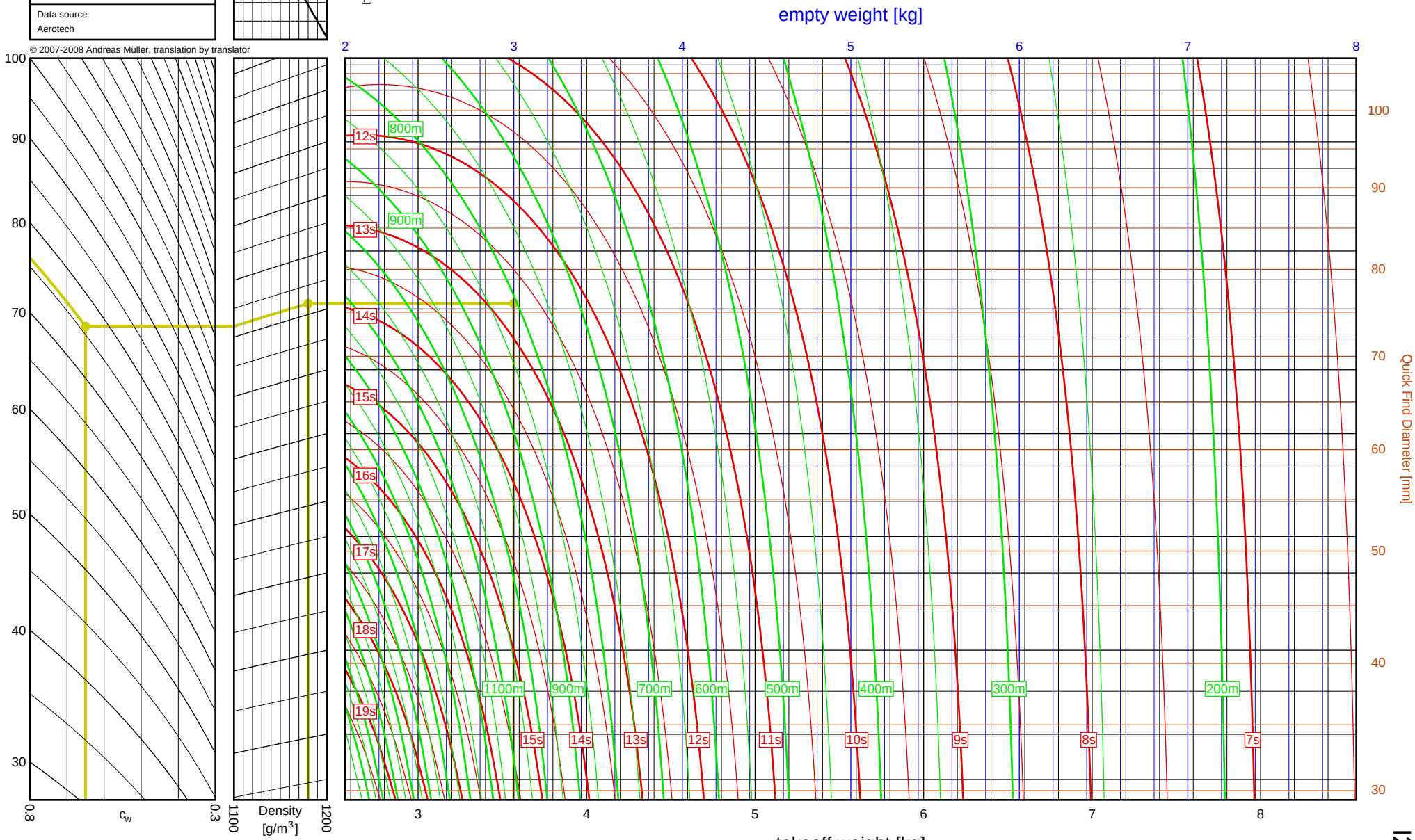
I_{tot}	=	529.8 Ns
F_{avg}	=	294.4 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.568kg
Results: time to apogee: 12.7s, expected altitude: 806m





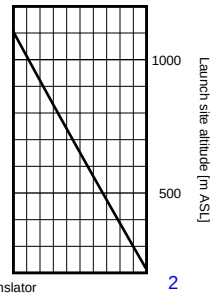
Aerotech I366R

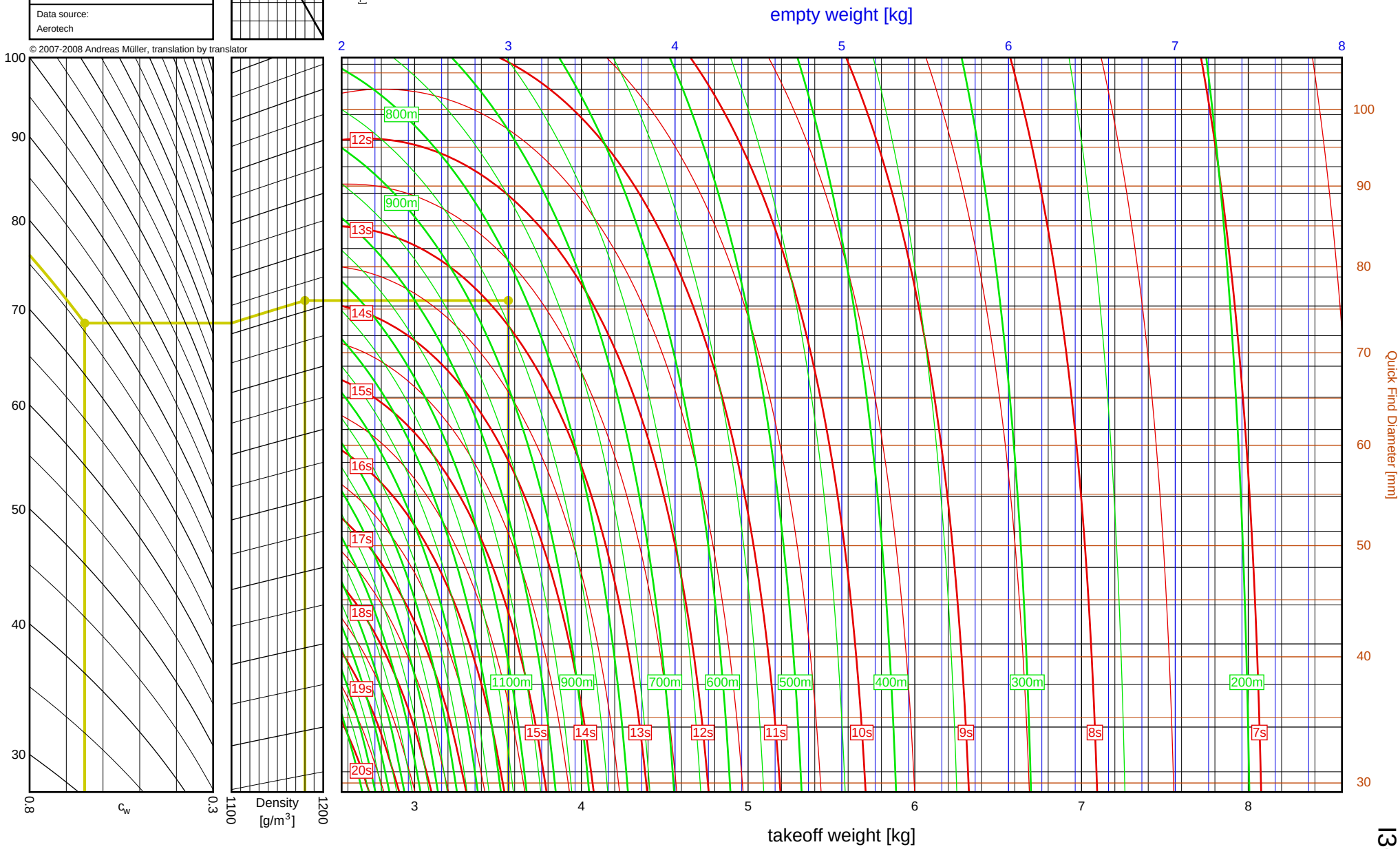
I_{tot}	=	537.1 Ns
F_{avg}	=	358.0 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.562kg
Results: time to apogee: 12.8s, expected altitude: 831m





I366R

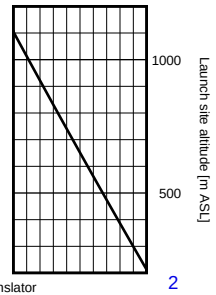
3", I-J

I366R

Aerotech I364FJ

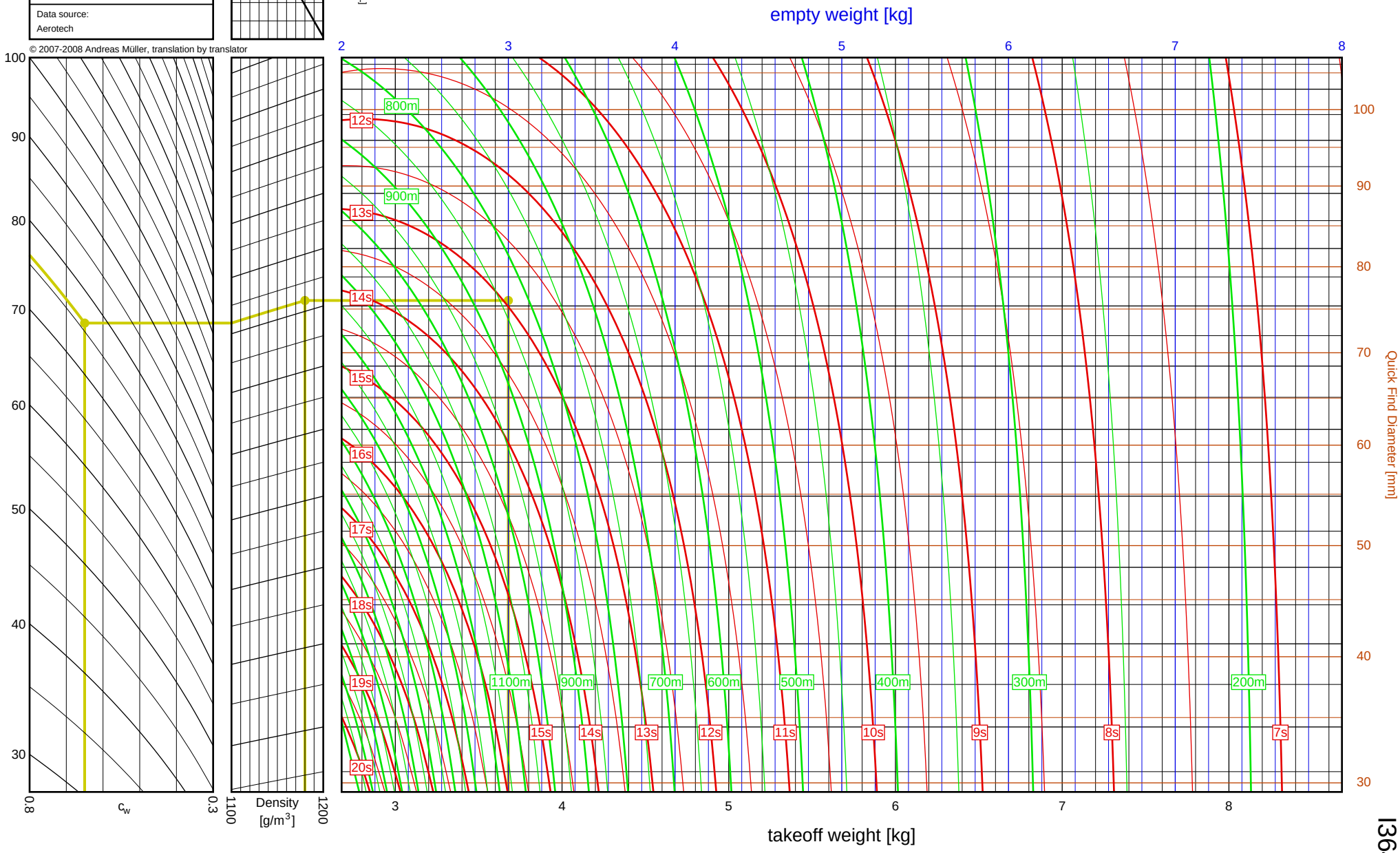
I_{tot}	=	551.2 Ns
F_{avg}	=	324.2 N
t_{burn}	=	1.70 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.678kg
Results: time to apogee: 13.0s, expected altitude: 836m

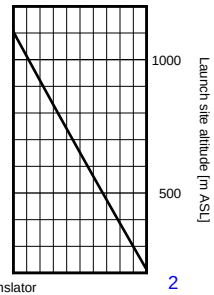


Aerotech

I600R

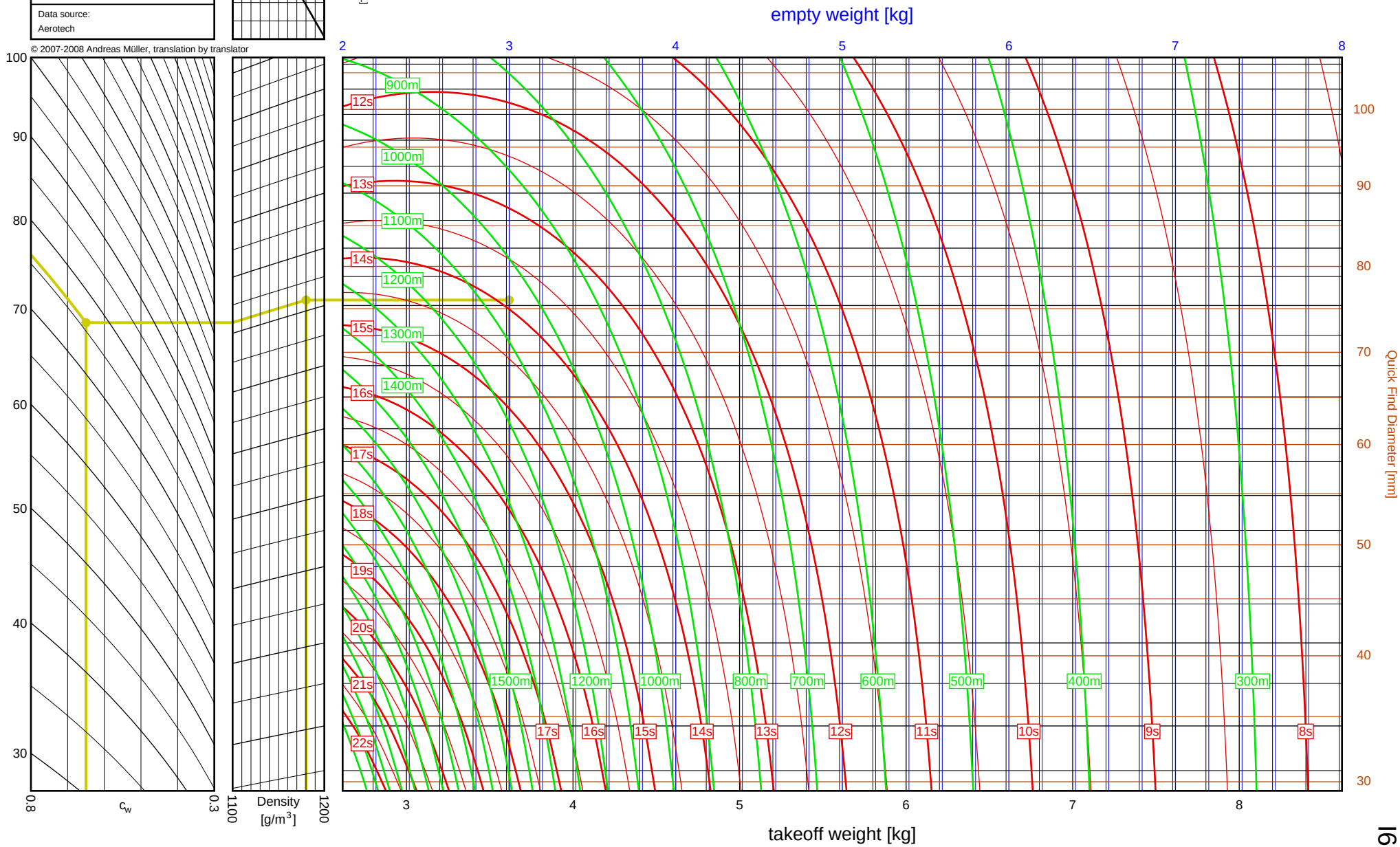
I_{tot}	=	640.1 Ns
F_{avg}	=	542.5 N
t_{burn}	=	1.18 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.617kg
Results: time to apogee: 13.9s, expected altitude: 1050m



I600R

3", I-J

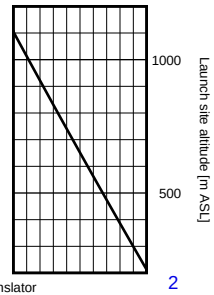
I600R

Aerotech

J350W.5

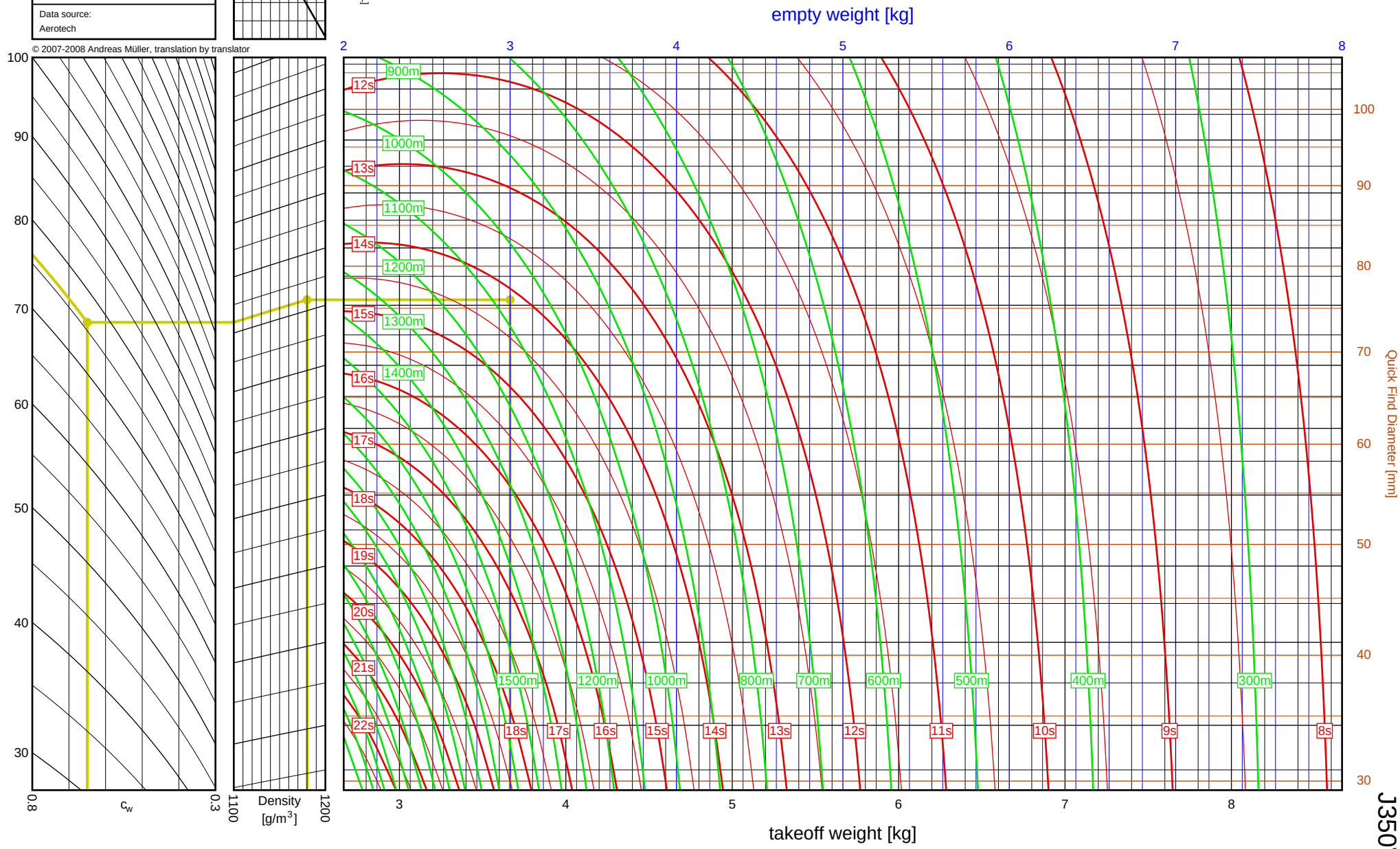
I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.665kg
Results: time to apogee: 14.1s, expected altitude: 1068m



J350W.5

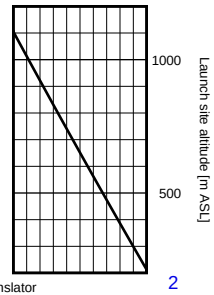
3", I-J

J350W.5

Aerotech J420R

I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.659kg
Results: time to apogee: 14.2s, expected altitude: 1067m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

J420R

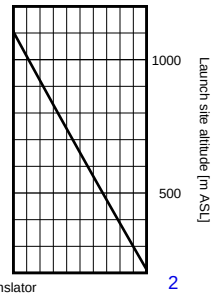
J420R

3", I-J

Aerotech J350W

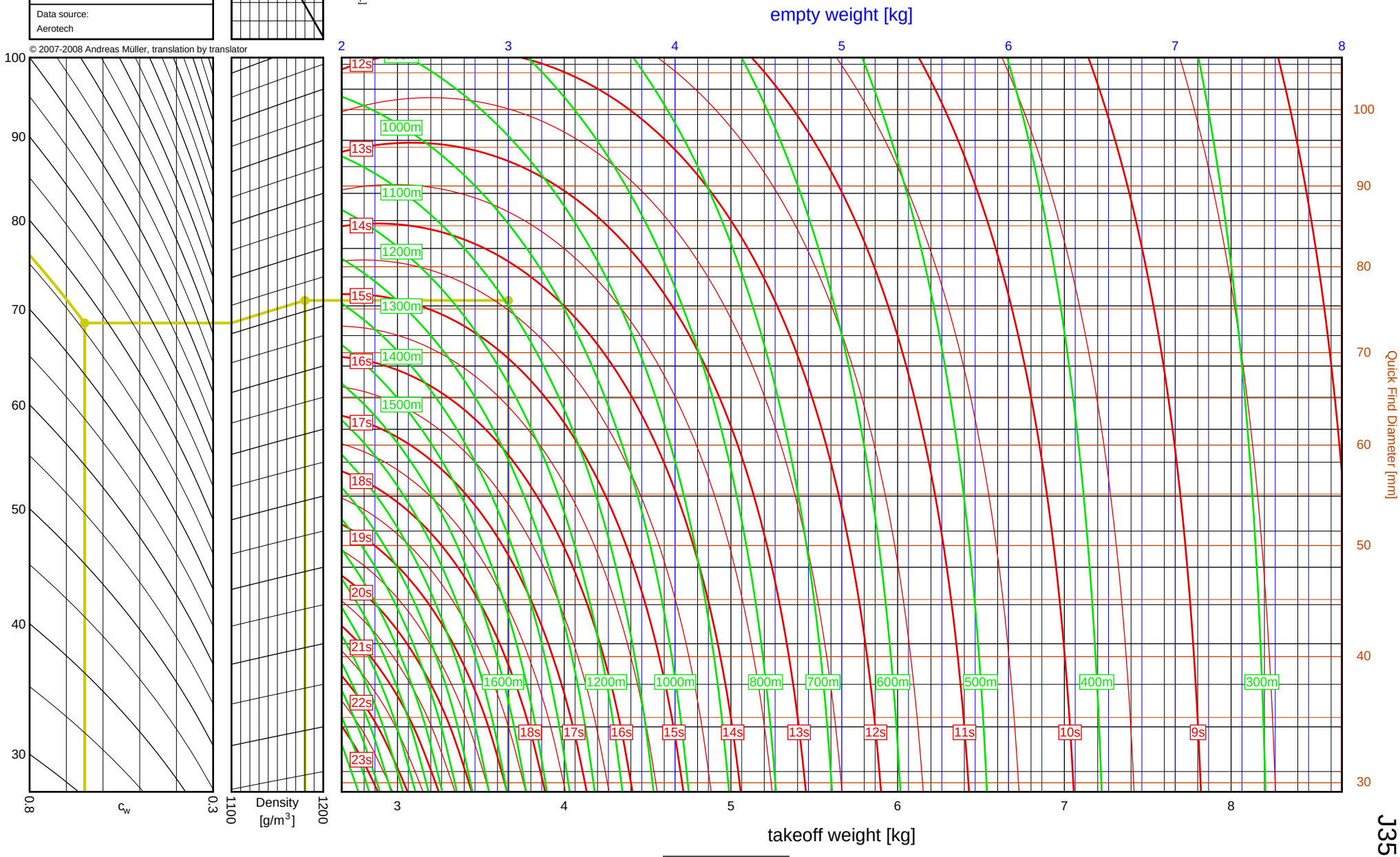
I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.665kg
Results: time to apogee: 14.4s, expected altitude: 1094m



J350W

J350W

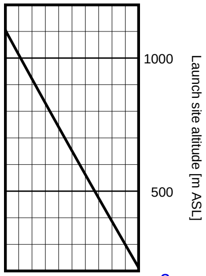
3", I-J

Aerotech

J90W

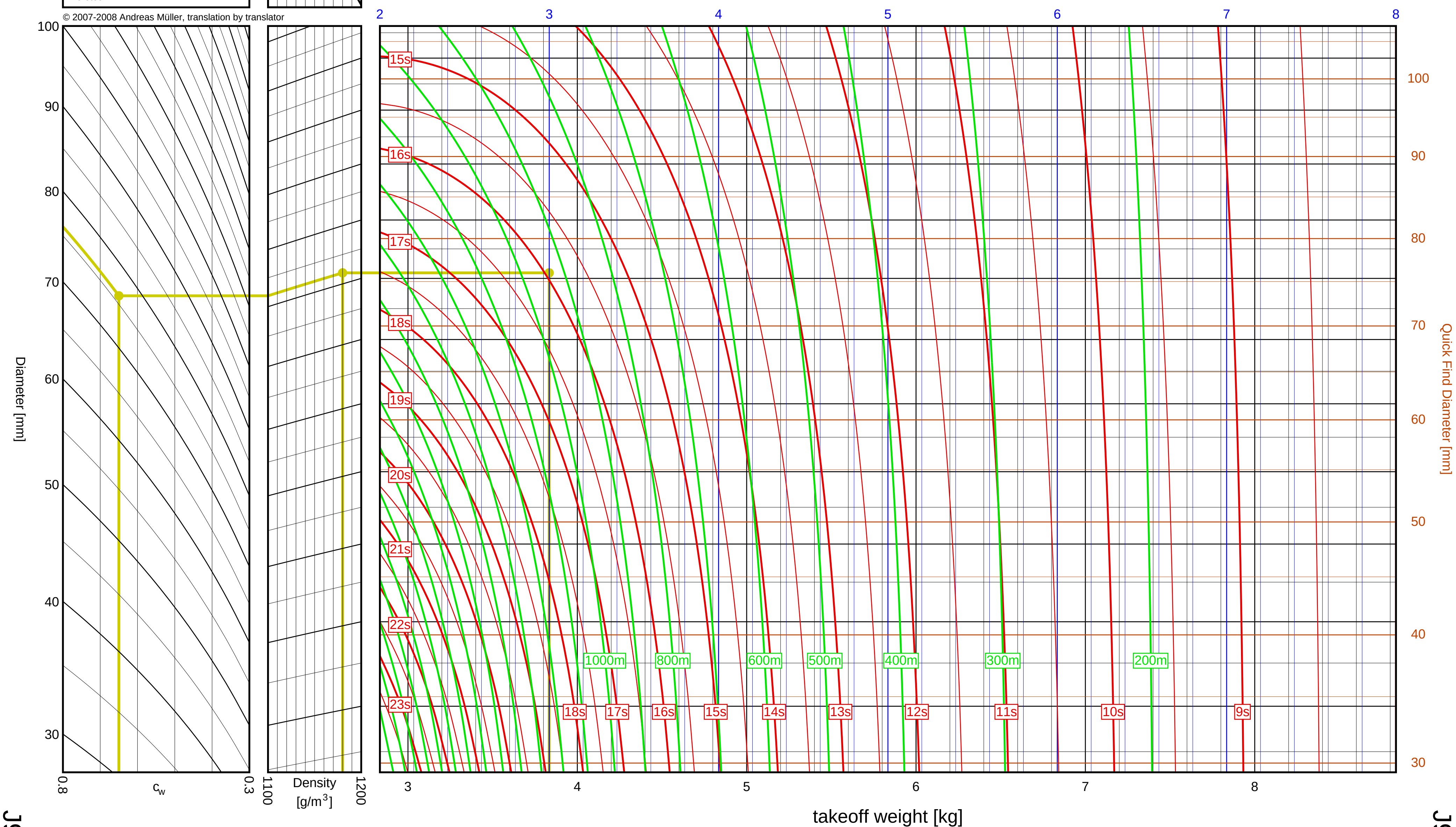
I_{tot} = 681.3 Ns
F_{avg} = 90.8 N
t_{burn} = 7.50 s
d = 54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.834kg
Results: time to apogee: 15.9s, expected altitude: 934m



6-26

J90W

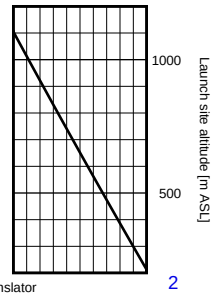
J90W

Aerotech

J250FJ

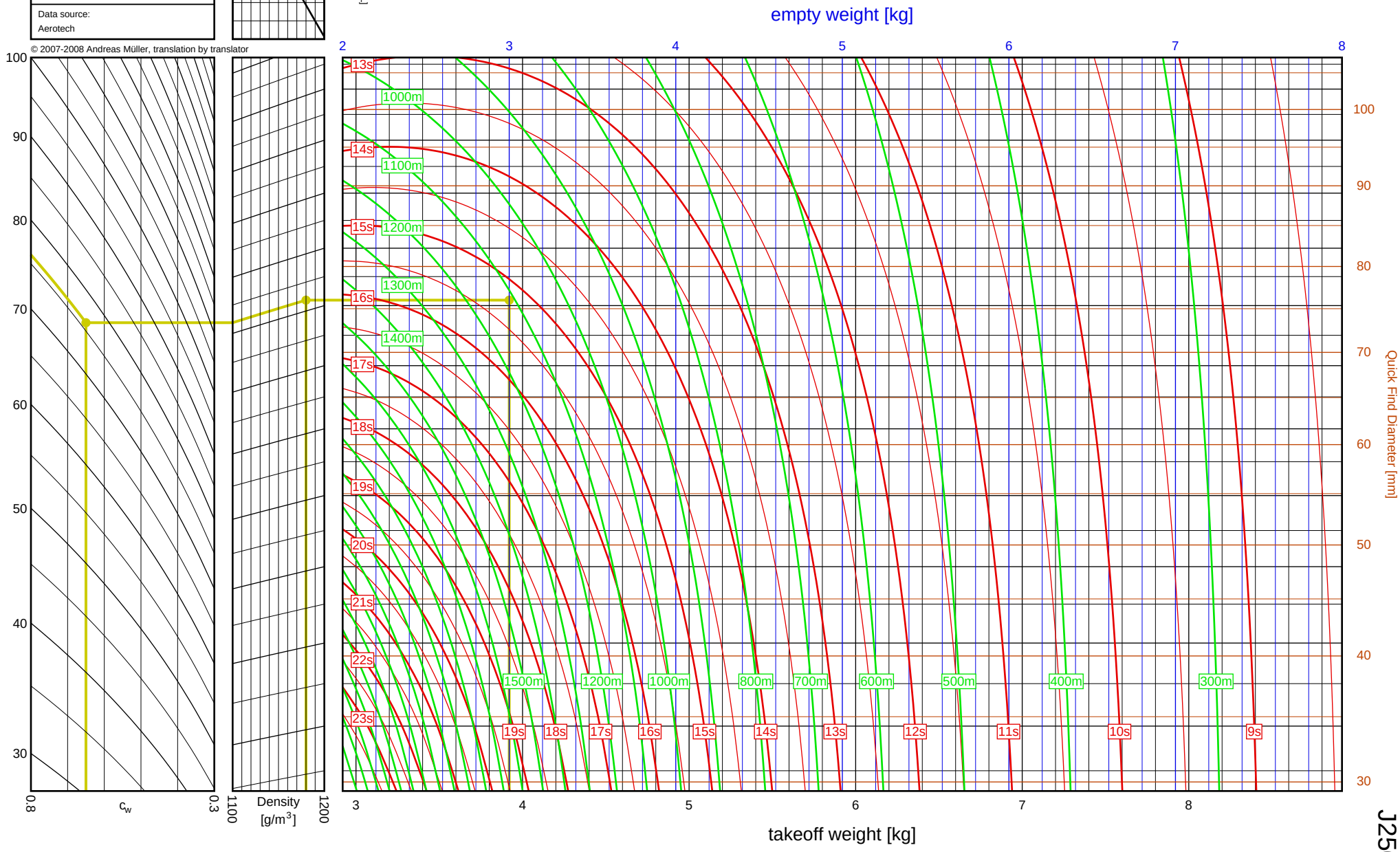
I_{tot}	=	707.2 Ns
F_{avg}	=	252.9 N
t_{burn}	=	2.80 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.920kg
Results: time to apogee: 15.2s, expected altitude: 1112m



J250FJ

J250FJ

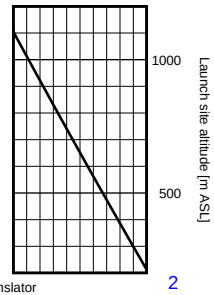
Aerotech J500G

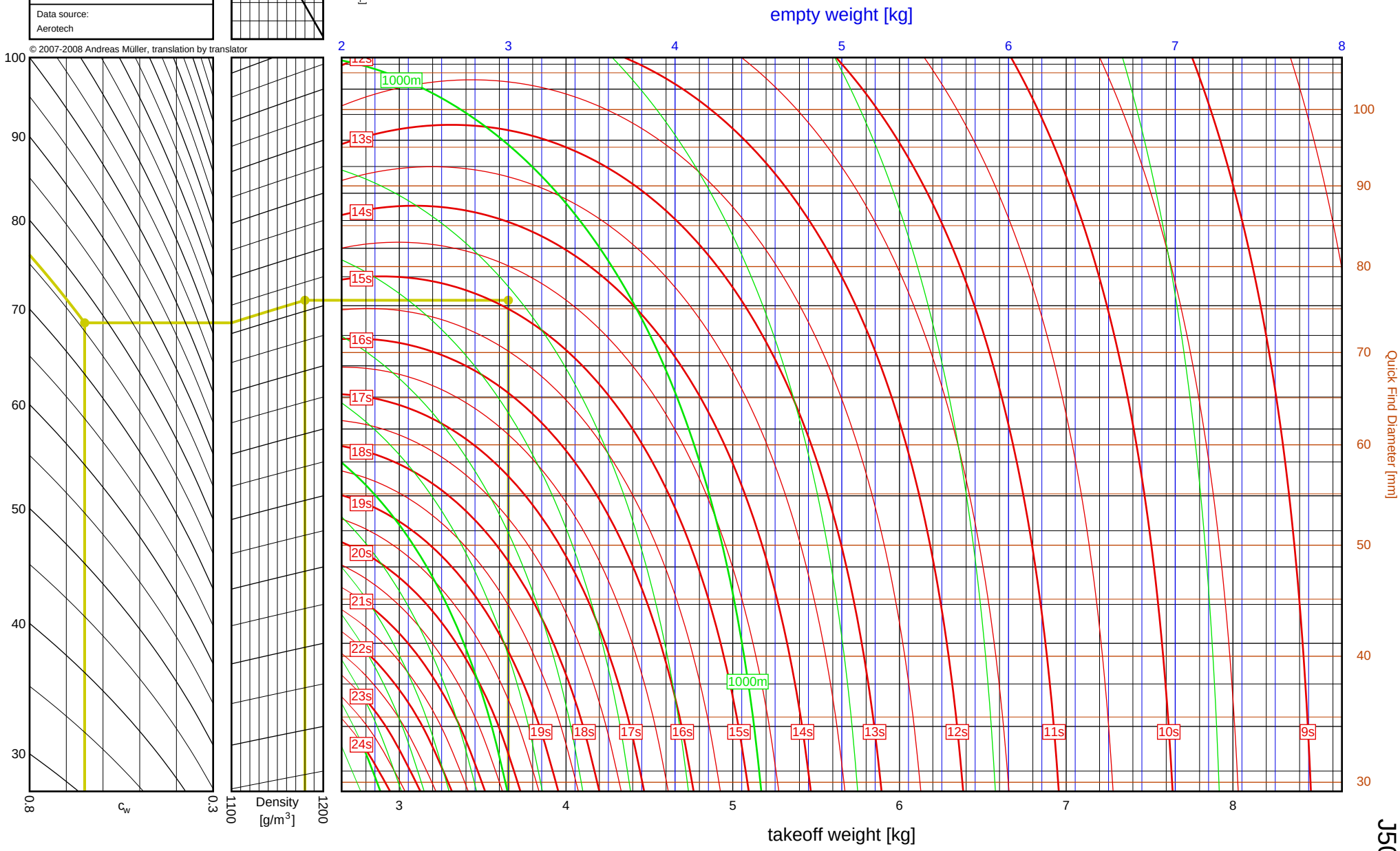
I_{tot}	=	722.7 Ns
F_{avg}	=	498.4 N
t_{burn}	=	1.45 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.654kg
Results: time to apogee: 14.9s, expected altitude: 1221m





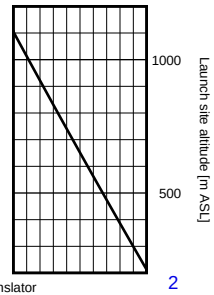
J500G

J500G

Aerotech J315R

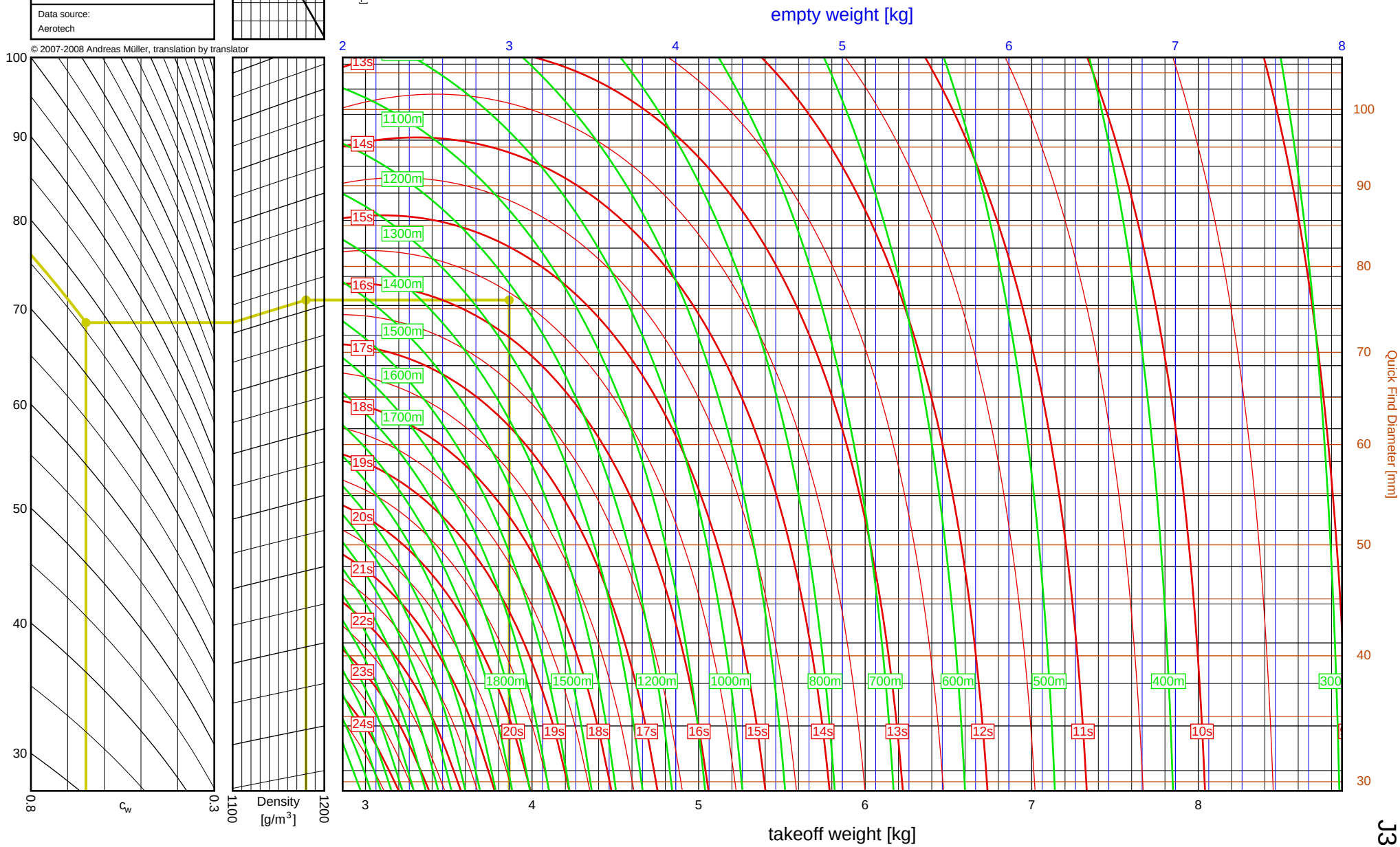
I_{tot}	=	757.1 Ns
F_{avg}	=	291.2 N
t_{burn}	=	2.60 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.863kg
Results: time to apogee: 15.6s, expected altitude: 1224m



J315R

3", I-J

J315R

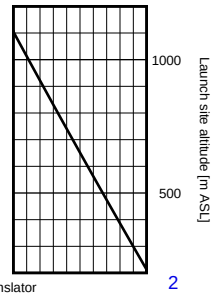
Aerotech J460T

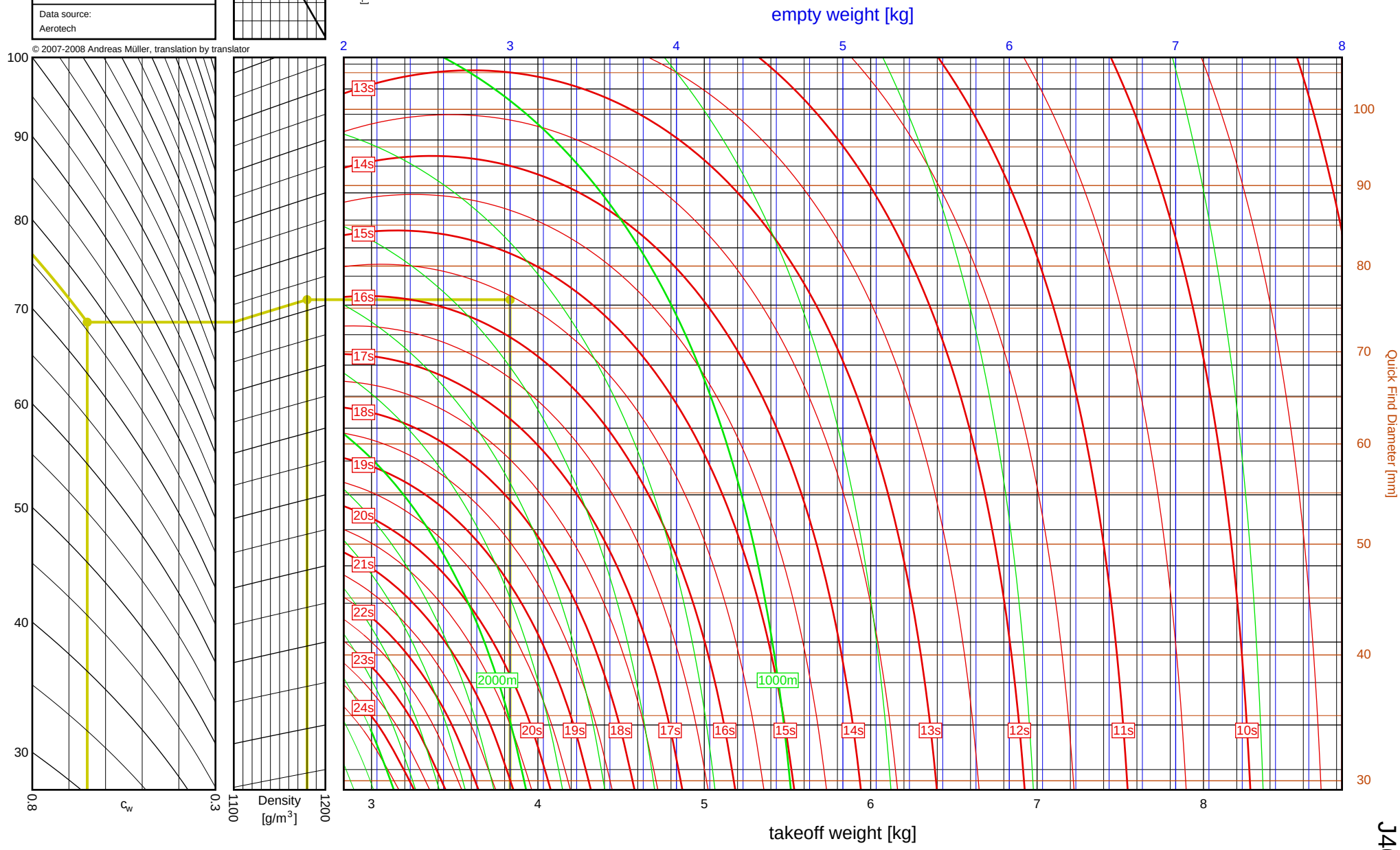
I_{tot}	=	783.5 Ns
F_{avg}	=	412.4 N
t_{burn}	=	1.90 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.833kg
Results: time to apogee: 15.6s, expected altitude: 1290m





J460T

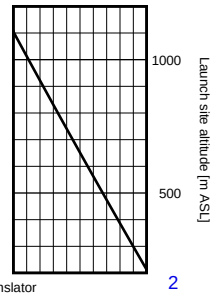
3", I-J

J460T

Aerotech J575FJ

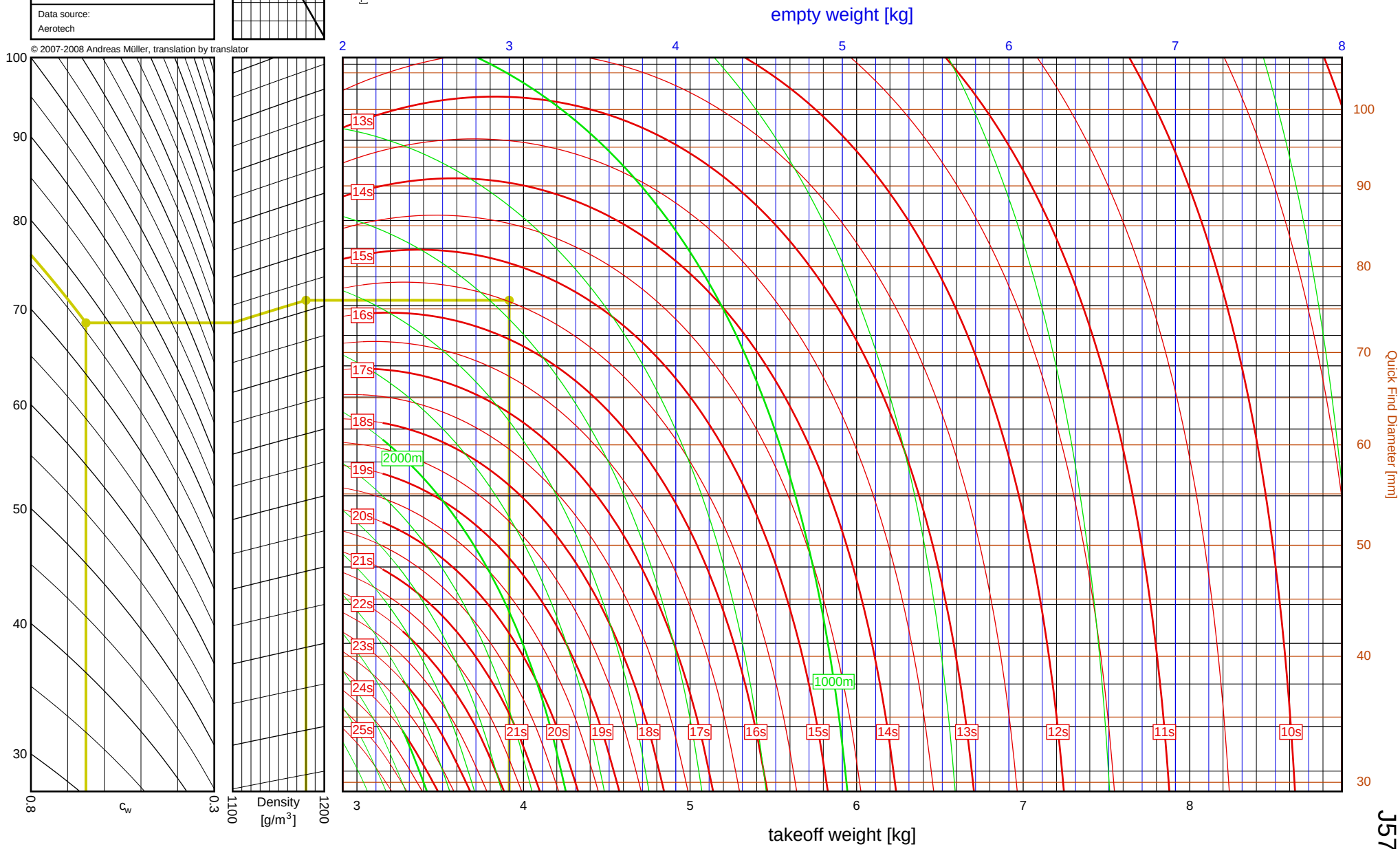
I_{tot}	=	800.6 Ns
F_{avg}	=	597.4 N
t_{burn}	=	1.34 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.914kg
Results: time to apogee: 15.5s, expected altitude: 1366m

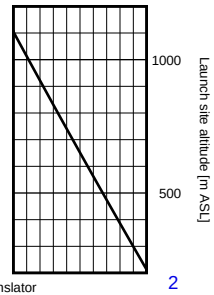


Aerotech

J275W

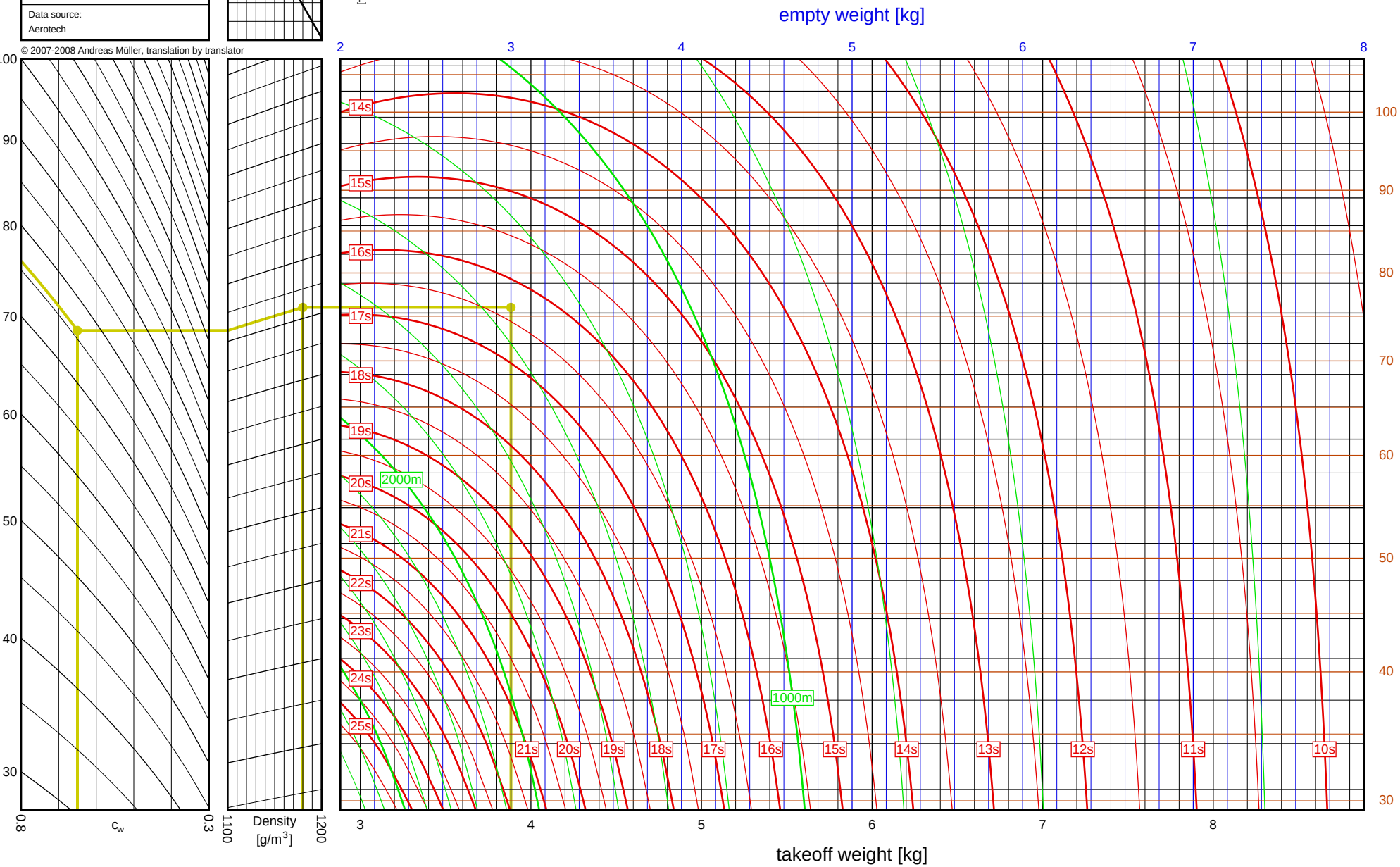
I_{tot}	=	818.7 Ns
F_{avg}	=	255.8 N
t_{burn}	=	3.20 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.883kg
Results: time to apogee: 16.3s, expected altitude: 1342m



J275W

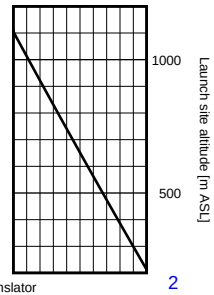
3", I-J

J275W

Aerotech J145H

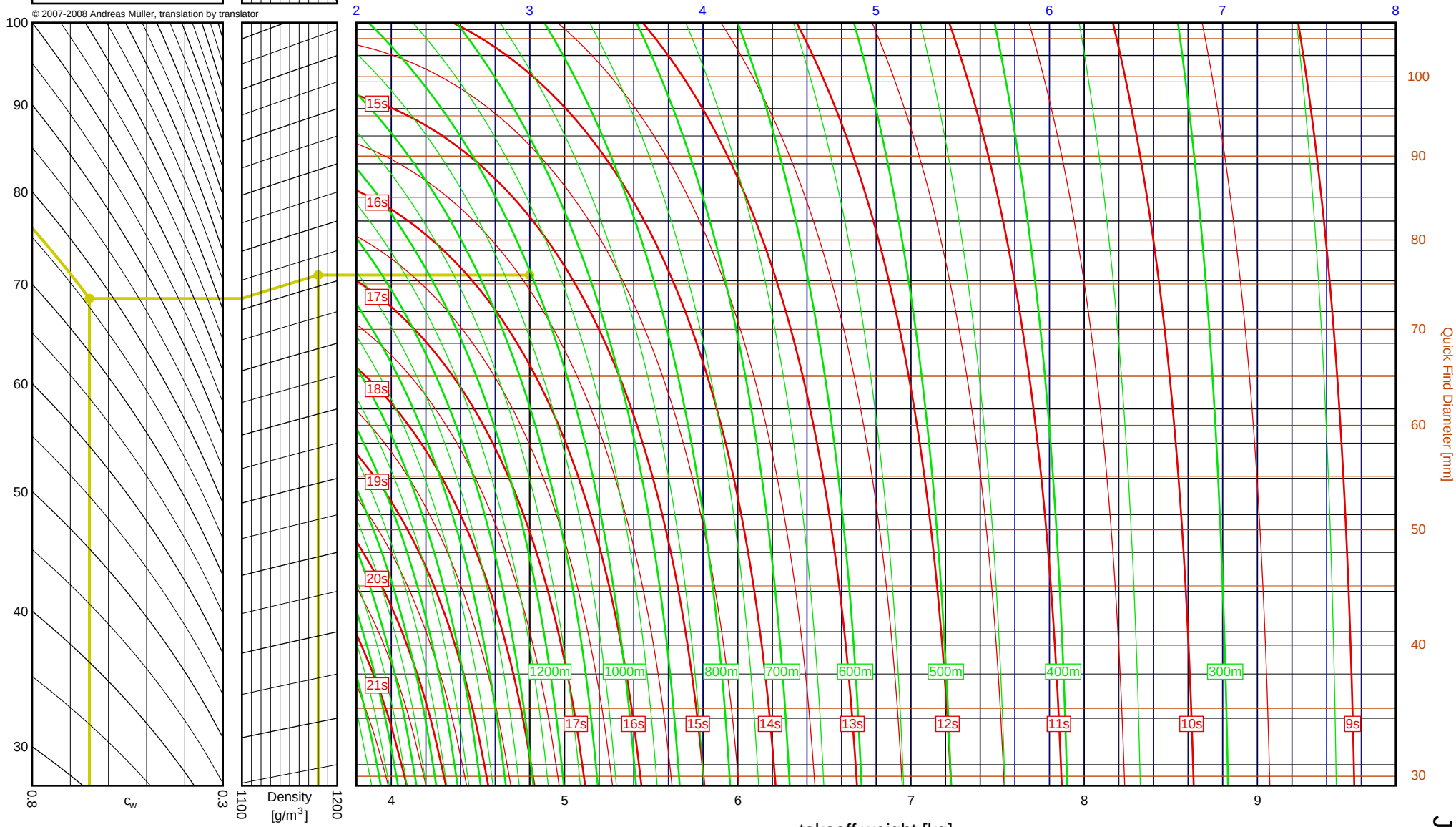
I_{tot}	=	821.6 Ns
F_{avg}	=	141.7 N
t_{burn}	=	5.80 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

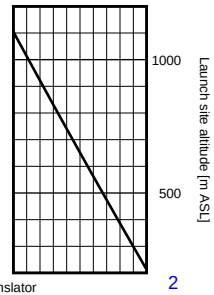
Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.797kg
Results: time to apogee: 15.4s, expected altitude: 1004m



Aerotech J180T

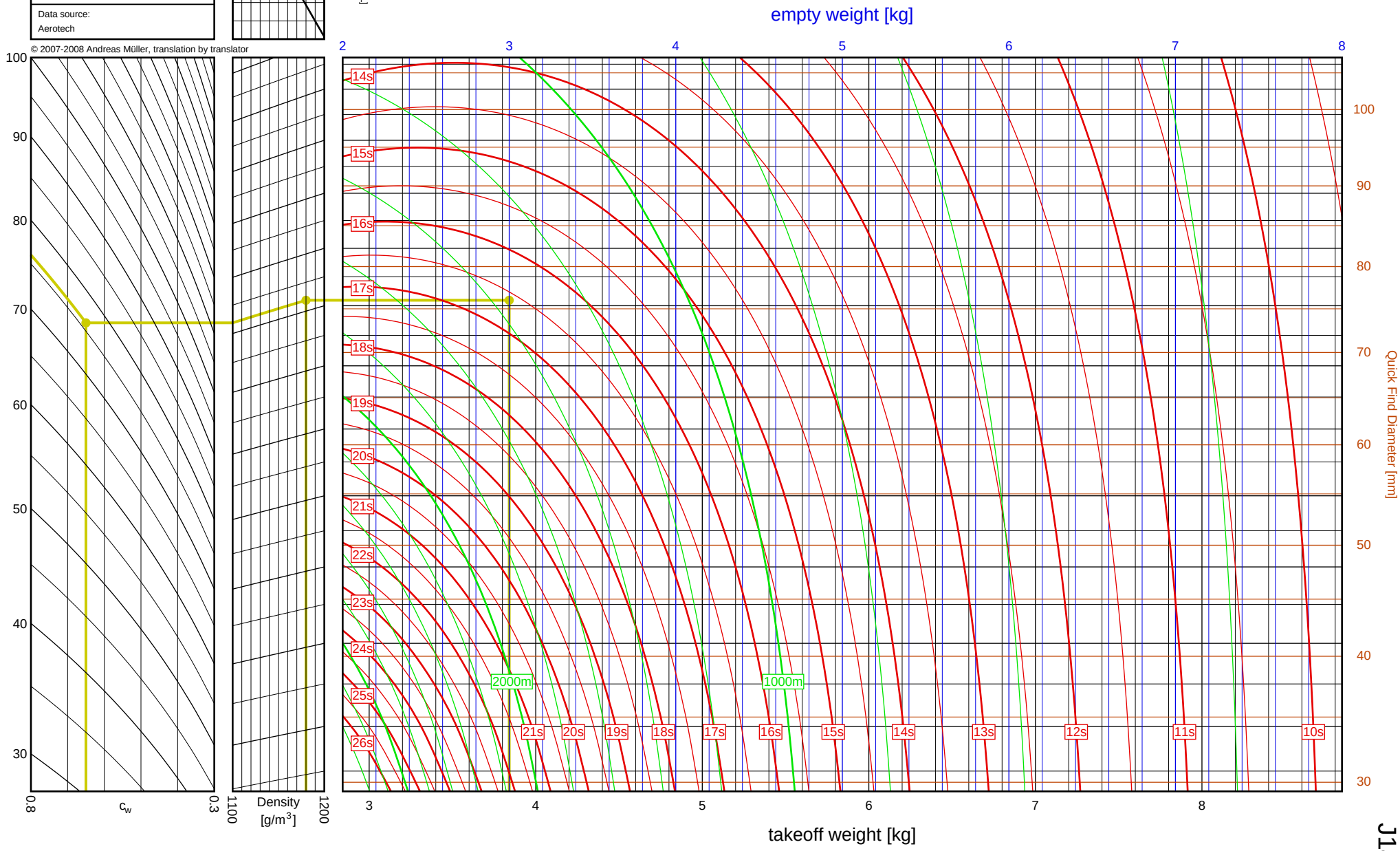
I_{tot}	=	825.8 Ns
F_{avg}	=	183.5 N
t_{burn}	=	4.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

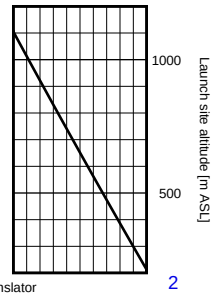
Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.841kg
Results: time to apogee: 16.6s, expected altitude: 1361m



Aerotech J210H

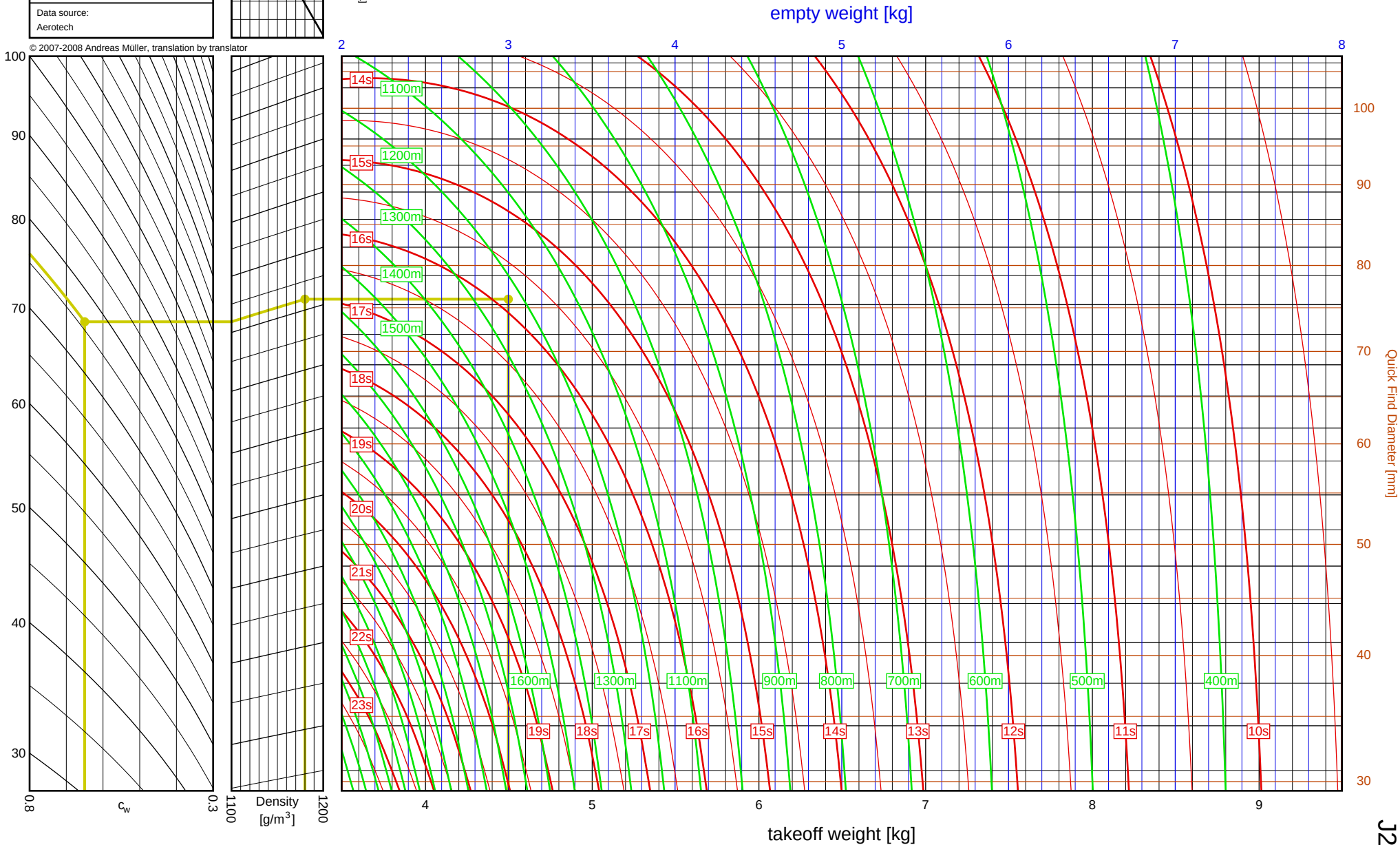
I_{tot}	=	853.8 Ns
F_{avg}	=	213.5 N
t_{burn}	=	4.00 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.497kg
Results: time to apogee: 15.9s, expected altitude: 1230m



J210H

3", I-J

6

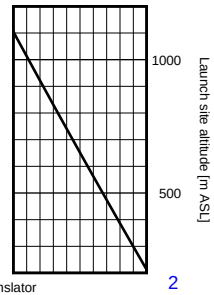
J210H

Aerotech

J825R

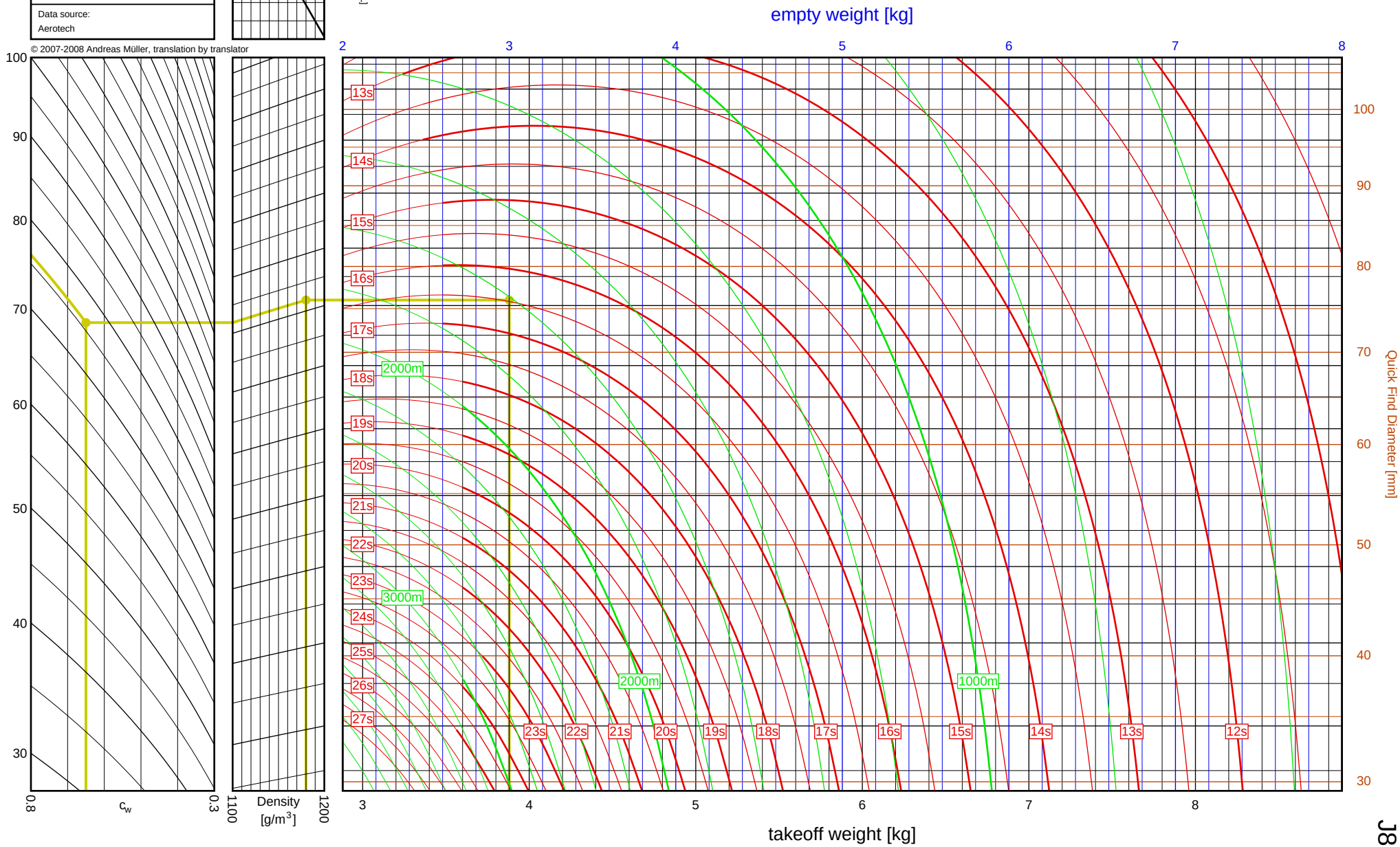
I_{tot}	=	928.0 Ns
F_{avg}	=	786.4 N
t_{burn}	=	1.18 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.880kg
Results: time to apogee: 16.5s, expected altitude: 1609m



J825R

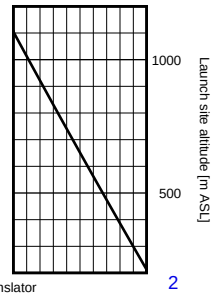
3", I-J

J825R

Aerotech J135W

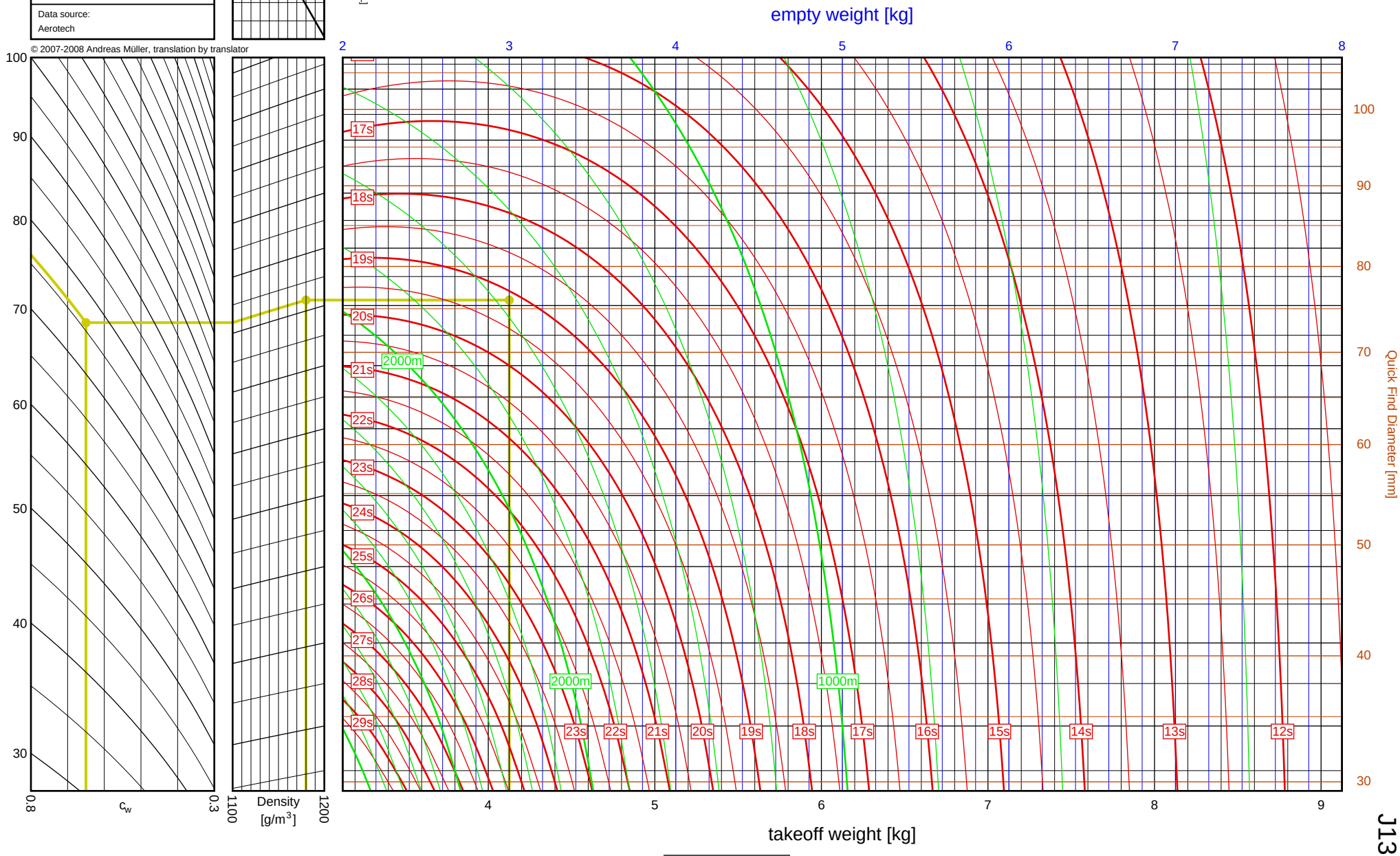
I_{tot}	=	989.2 Ns
F_{avg}	=	141.3 N
t_{burn}	=	7.00 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.126kg
Results: time to apogee: 19.1s, expected altitude: 1567m



J135W

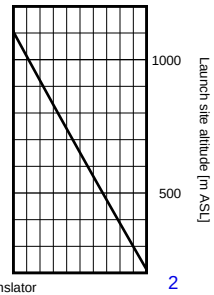
J135W

Aerotech

J1999N

I_{tot}	=	1250.3 Ns
F_{avg}	=	1866.2 N
t_{burn}	=	0.67 s
d	=	54 mm

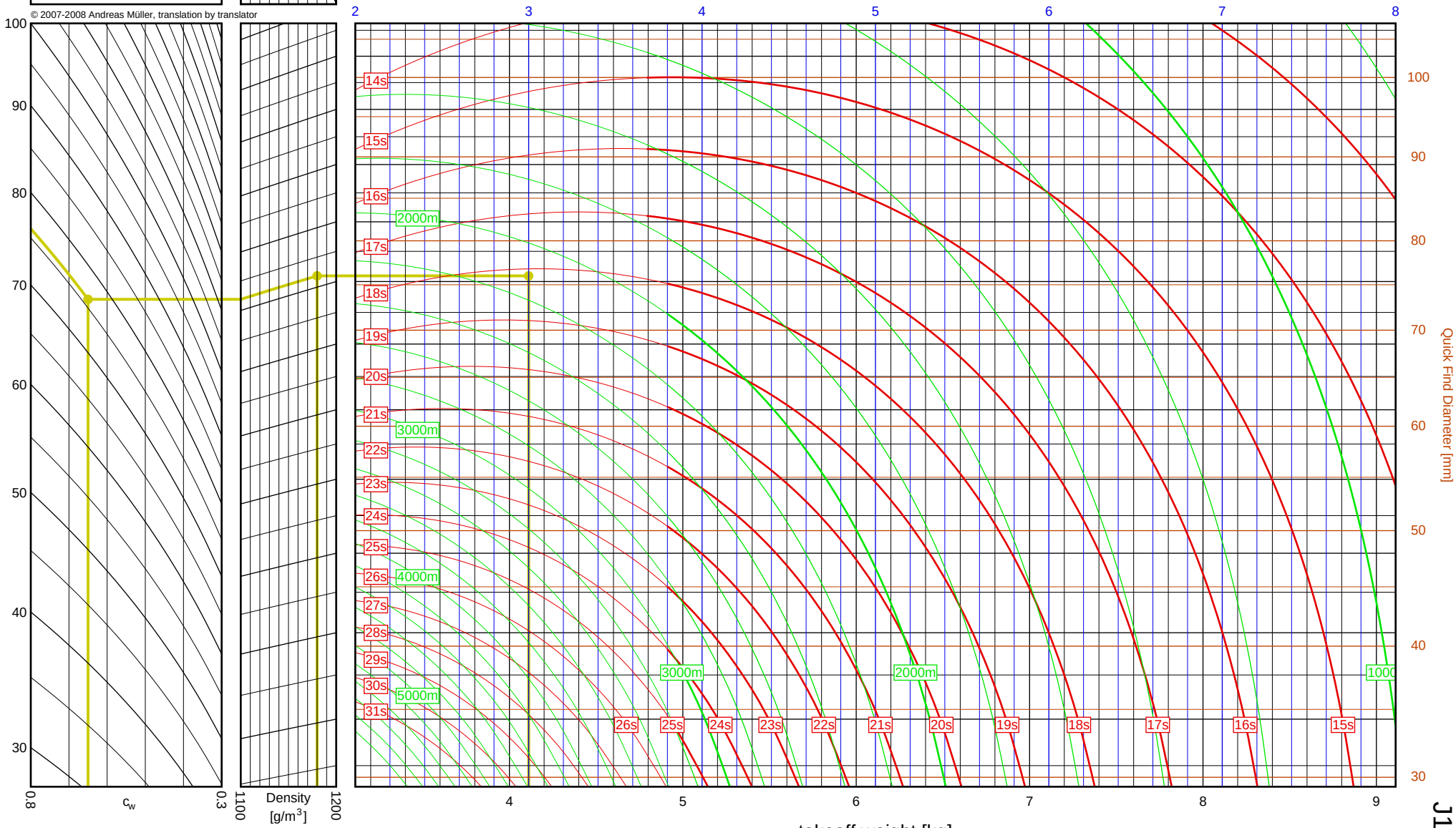
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.111kg
Results: time to apogee: 18.1s, expected altitude: 2114m

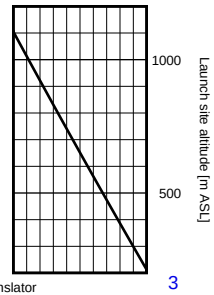
empty weight [kg]



Aerotech J350W.5

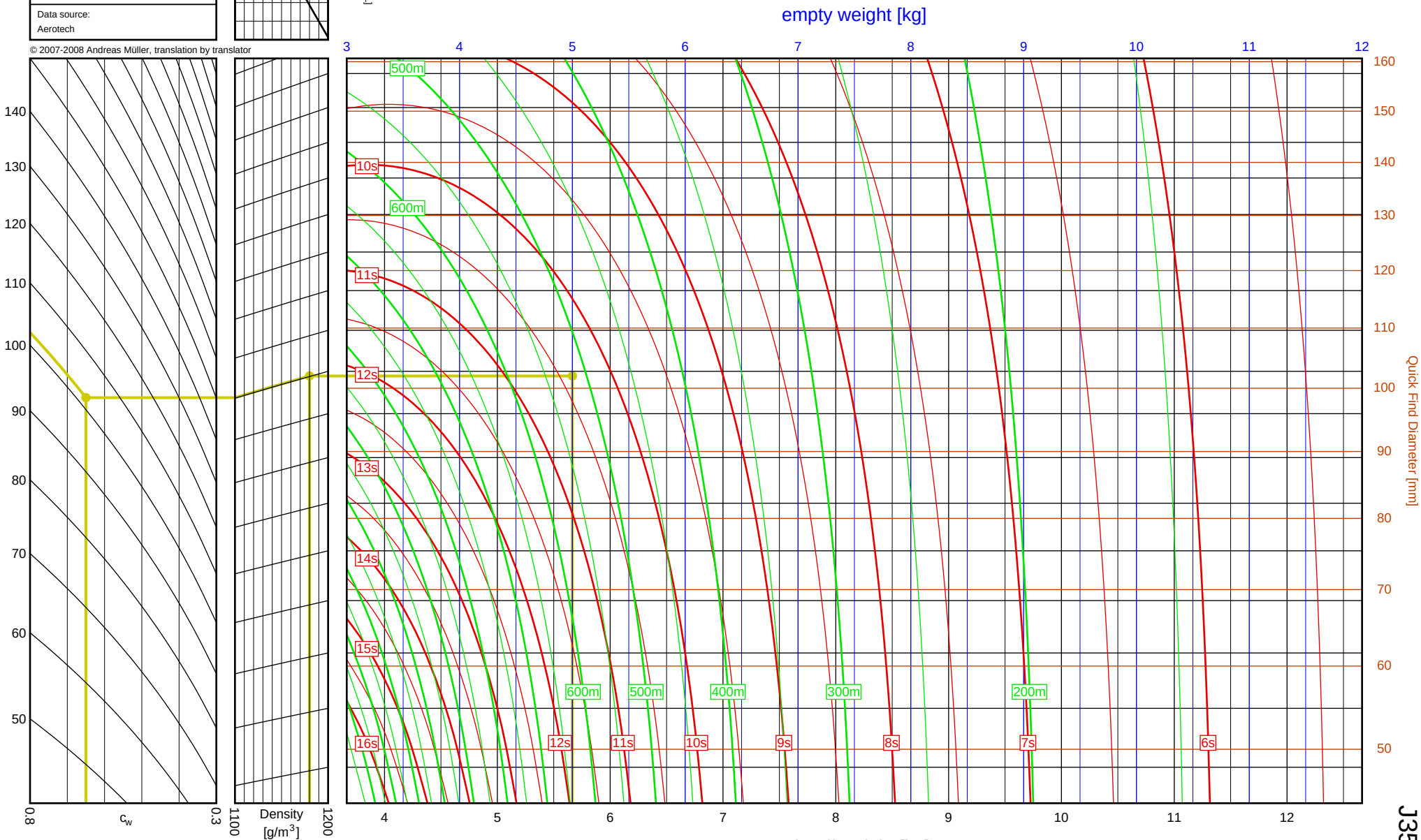
I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.665kg
Results: time to apogee: 10.4s, expected altitude: 517m



J350W.5

4", J-K

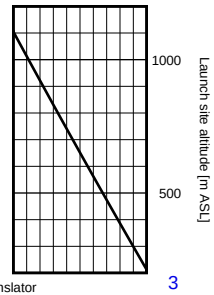
J350W.5

Aerotech

J420R

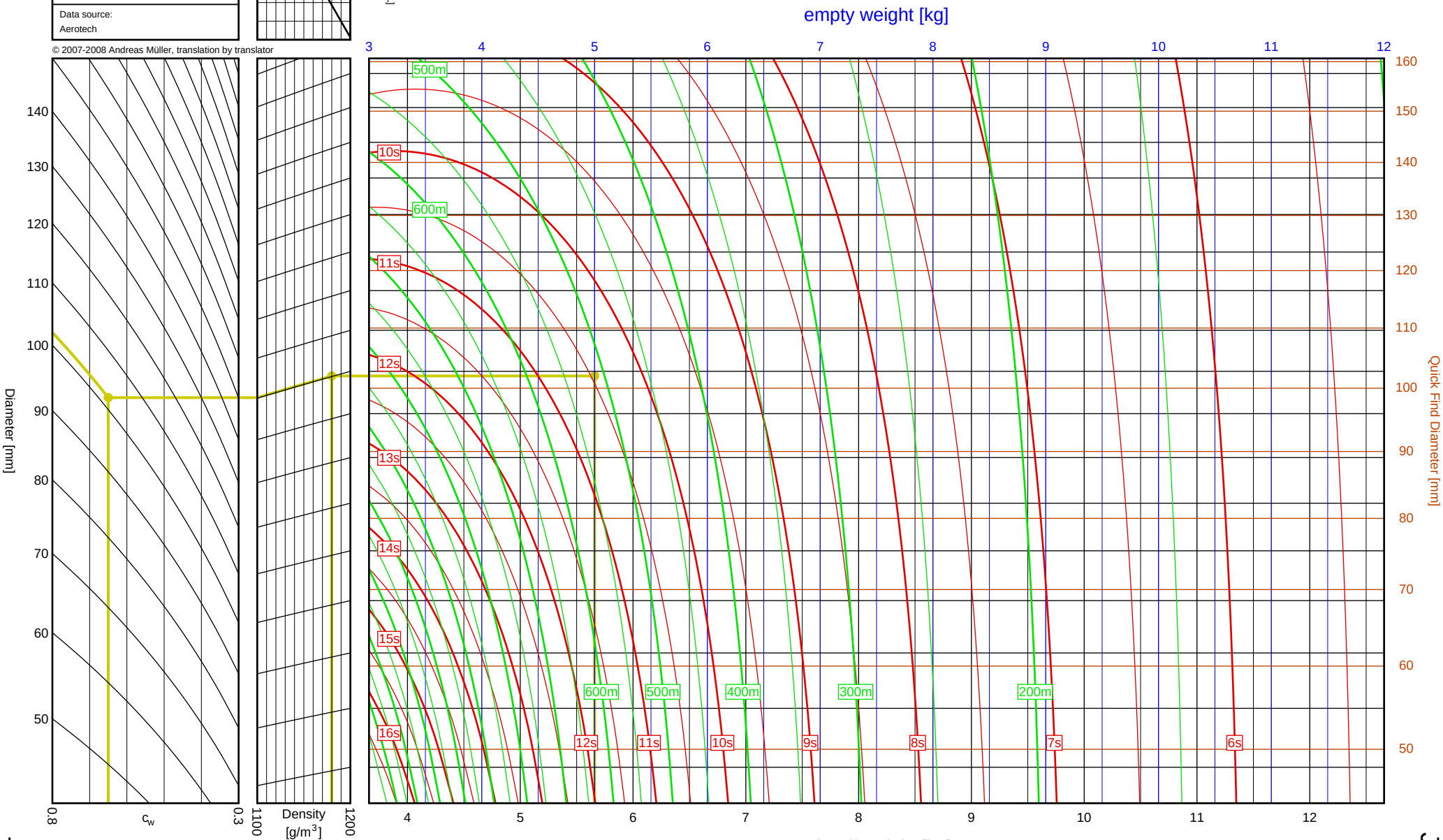
I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

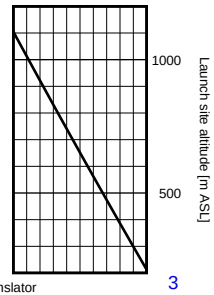
Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.659kg
Results: time to apogee: 10.5s, expected altitude: 512m



Aerotech J350W

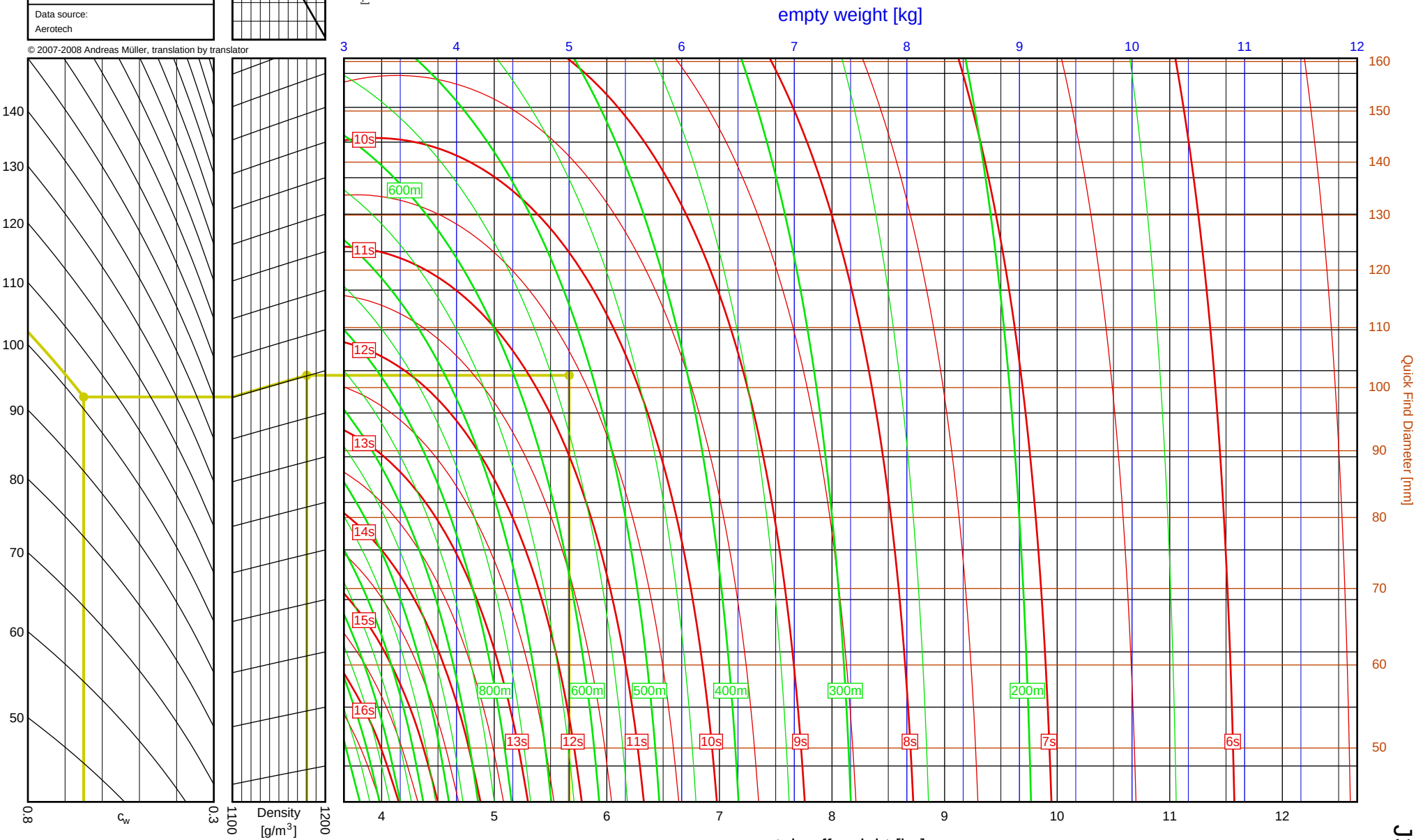
I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.665kg
Results: time to apogee: 10.6s, expected altitude: 528m



J350W

4", J-K

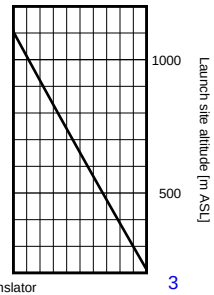
Aerotech J250FJ

I_{tot}	=	707.2 Ns
F_{avg}	=	252.9 N
t_{burn}	=	2.80 s
d	=	54 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.920kg
Results: time to apogee: 11.3s, expected altitude: 523m



empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

11s 12s 13s 14s 15s 16s 17s

600m 500m 400m 300m 200m 100m

13s 12s 11s 10s 9s 8s 7s 6s

4" , J-K

7-4

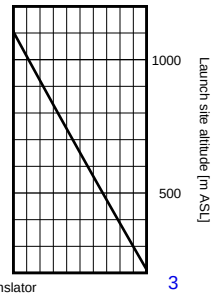
J250FJ

J250FJ

Aerotech J500G

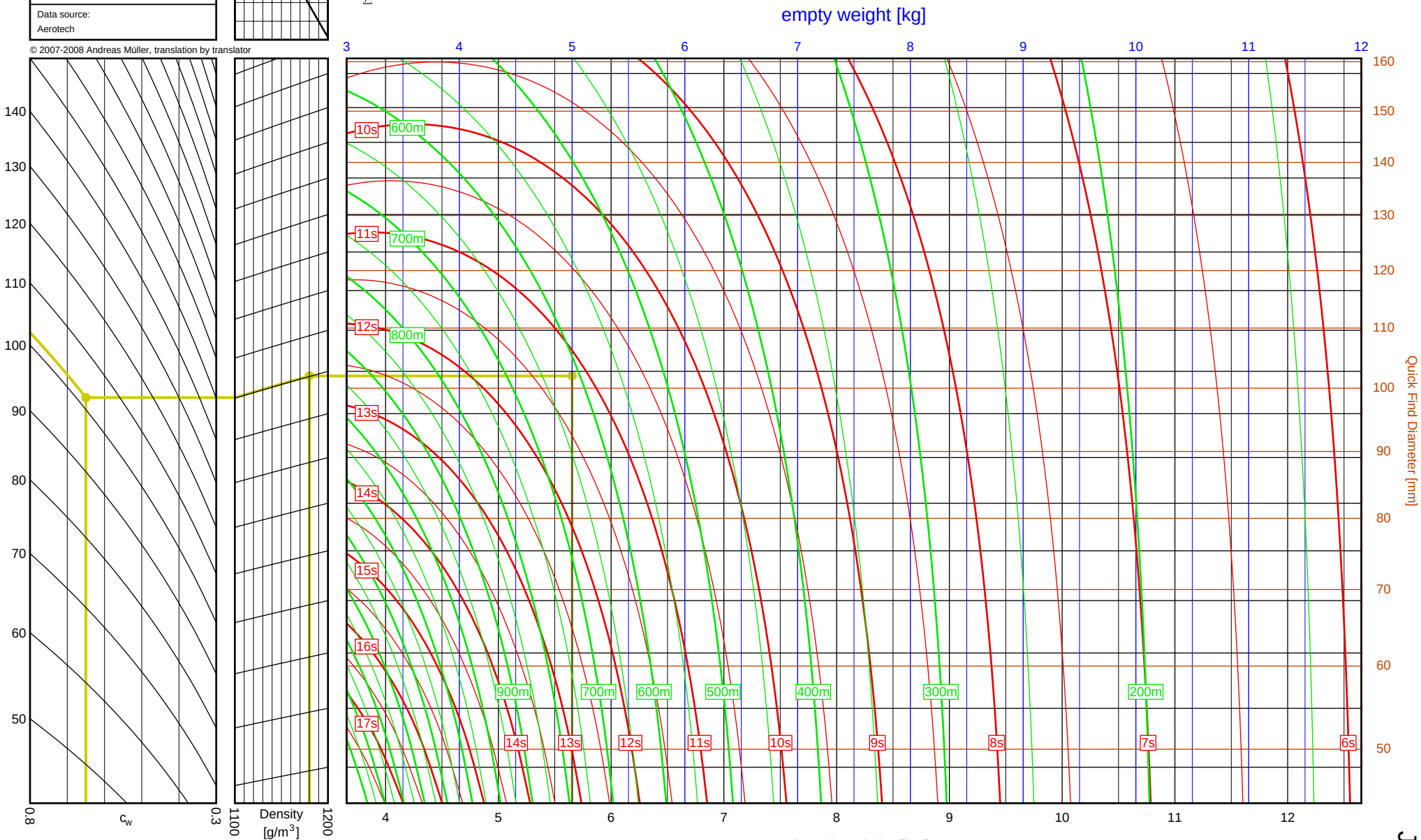
I_{tot}	=	722.7 Ns
F_{avg}	=	498.4 N
t_{burn}	=	1.45 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.654kg
Results: time to apogee: 11.2s, expected altitude: 610m

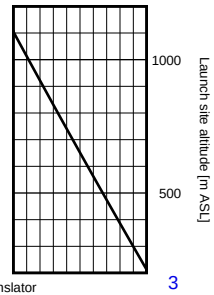


Aerotech

J315R

I_{tot}	=	757.1 Ns
F_{avg}	=	291.2 N
t_{burn}	=	2.60 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.863kg
Results: time to apogee: 11.7s, expected altitude: 598m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

600m 700m 11s 12s 13s 14s 15s 16s 17s 18s 900m 700m 600m 500m 400m 300m 200m 14s 13s 12s 11s 10s 9s 8s 7s

J315R

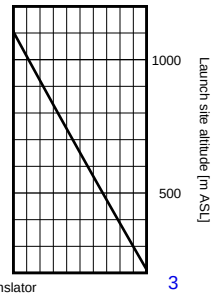
4", J-K

J315R

Aerotech J460T

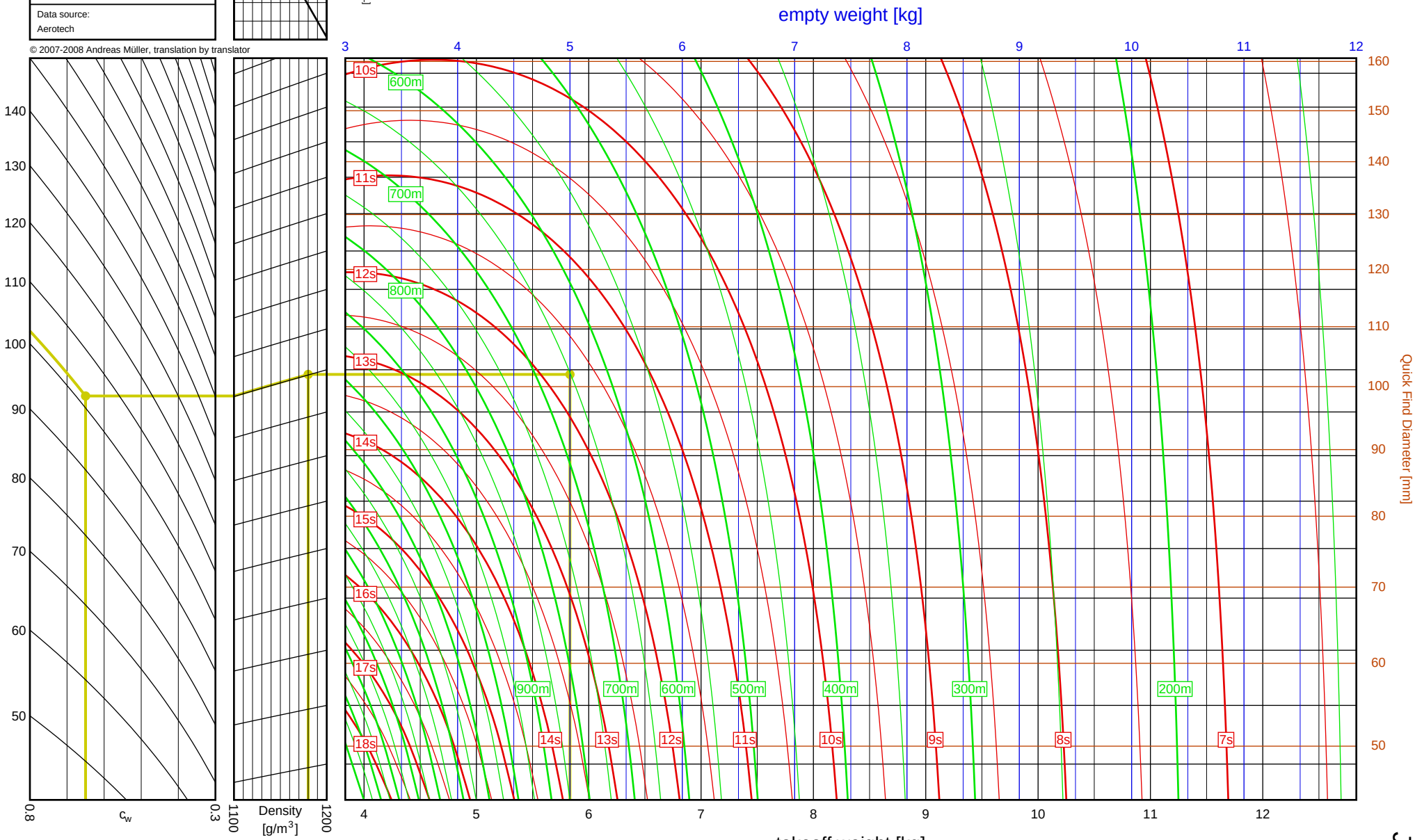
I_{tot}	=	783.5 Ns
F_{avg}	=	412.4 N
t_{burn}	=	1.90 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.833kg
Results: time to apogee: 11.7s, expected altitude: 651m



J460T

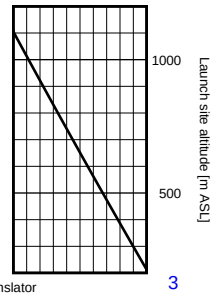
4", J-K

J460T

Aerotech J575FJ

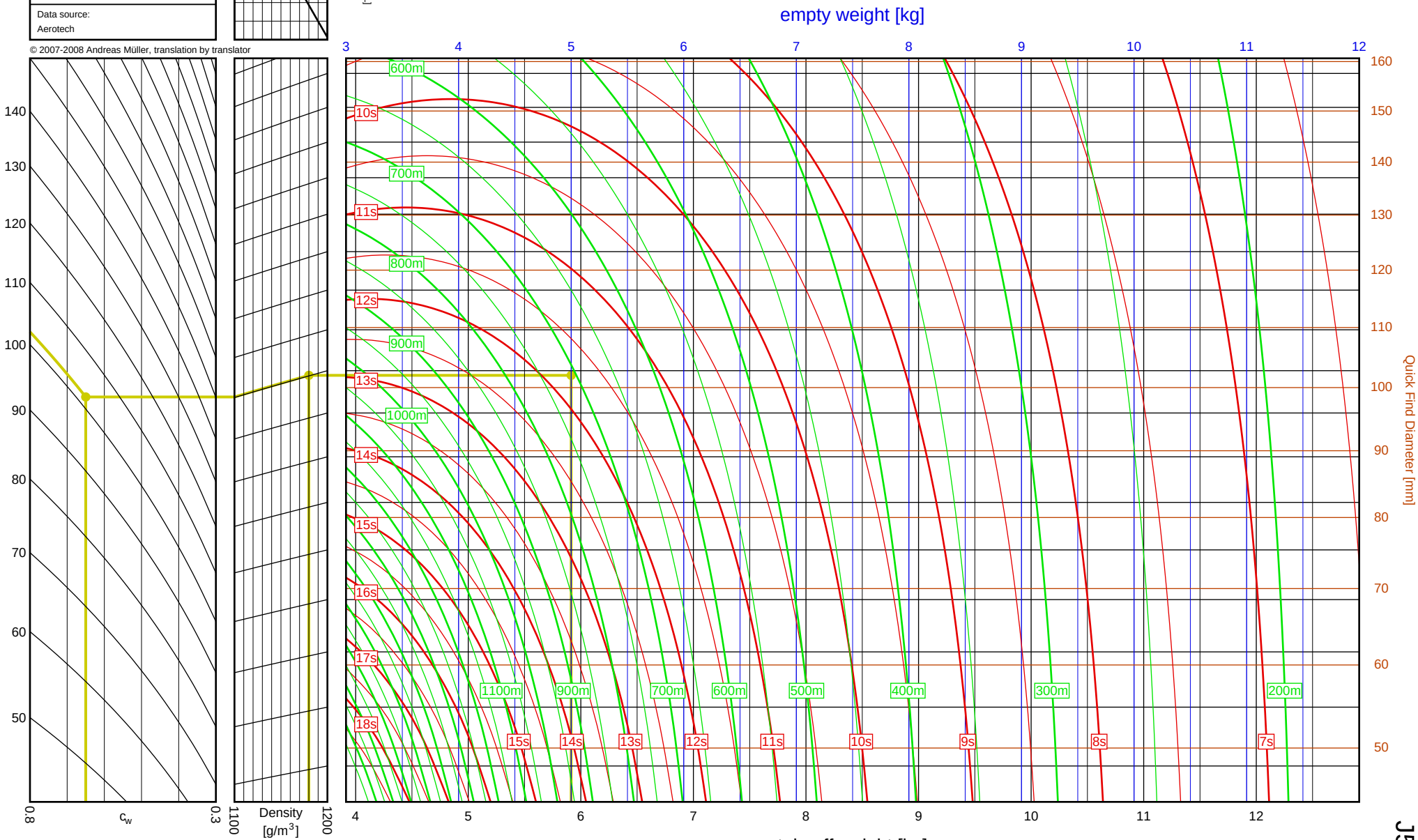
I_{tot}	=	800.6 Ns
F_{avg}	=	597.4 N
t_{burn}	=	1.34 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.914kg
Results: time to apogee: 11.8s, expected altitude: 707m

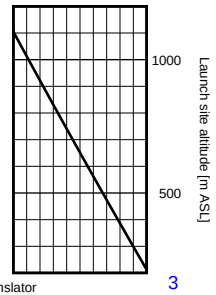


4", J-K

Aerotech J275W

I_{tot}	=	818.7 Ns
F_{avg}	=	255.8 N
t_{burn}	=	3.20 s
d	=	54 mm

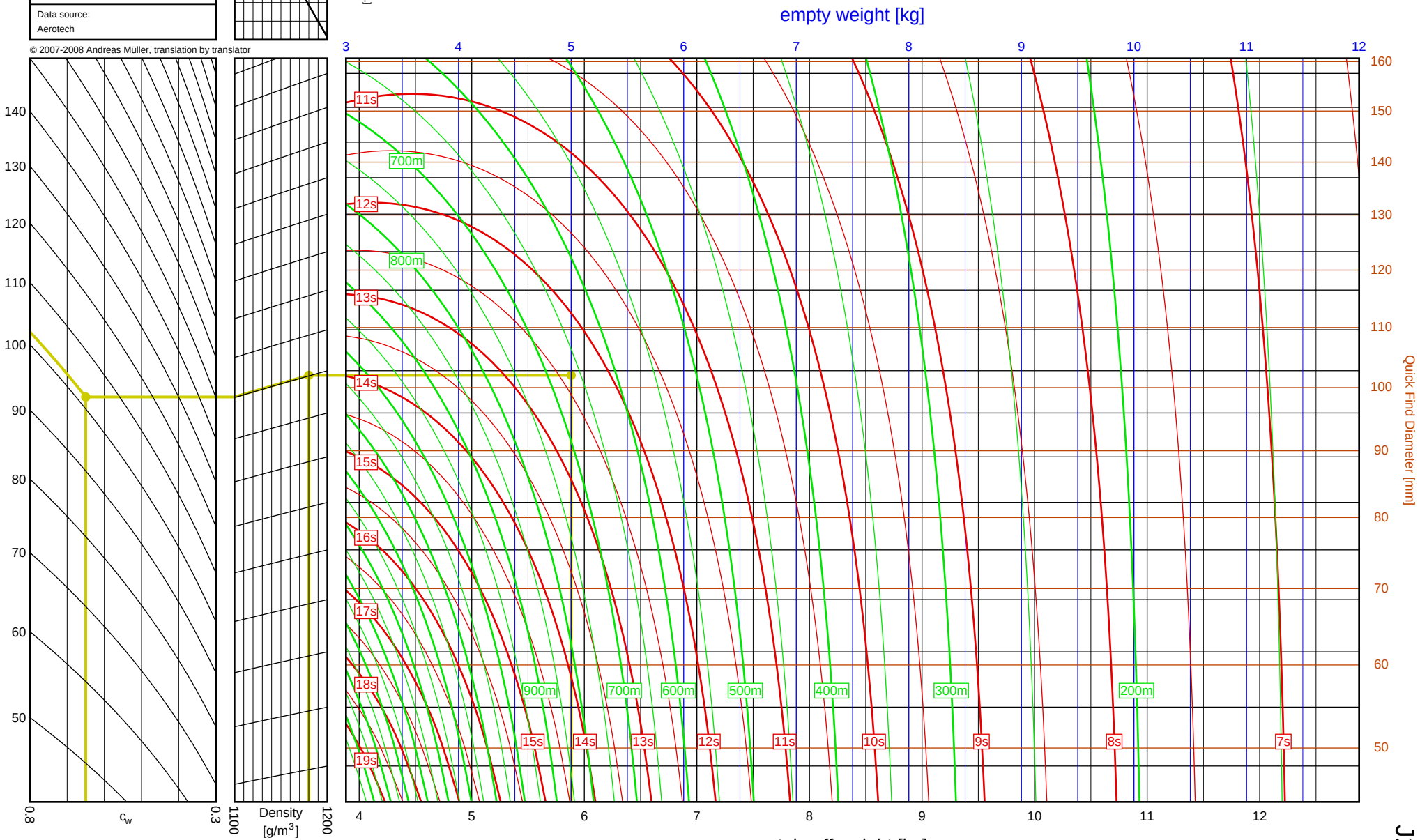
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.883kg

Results: time to apogee: 12.4s, expected altitude: 665m



J275W

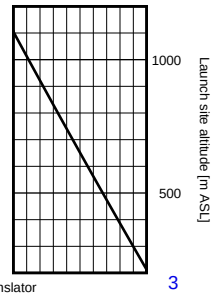
4", J-K

J275W

Aerotech J145H

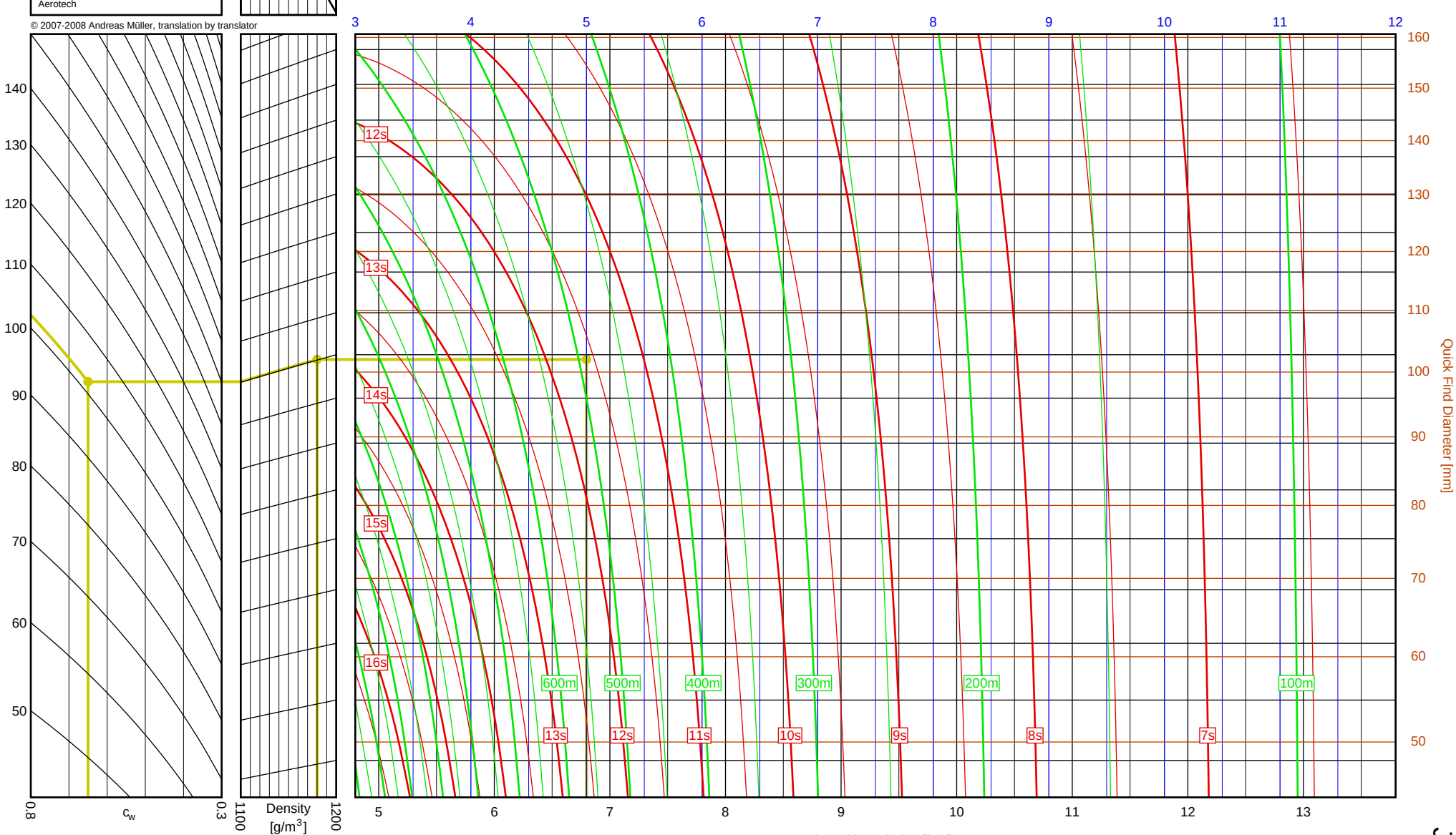
I_{tot}	=	821.6 Ns
F_{avg}	=	141.7 N
t_{burn}	=	5.80 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.797kg
Results: time to apogee: 11.6s, expected altitude: 491m

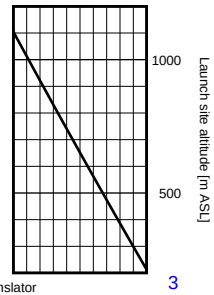


Aerotech

J180T

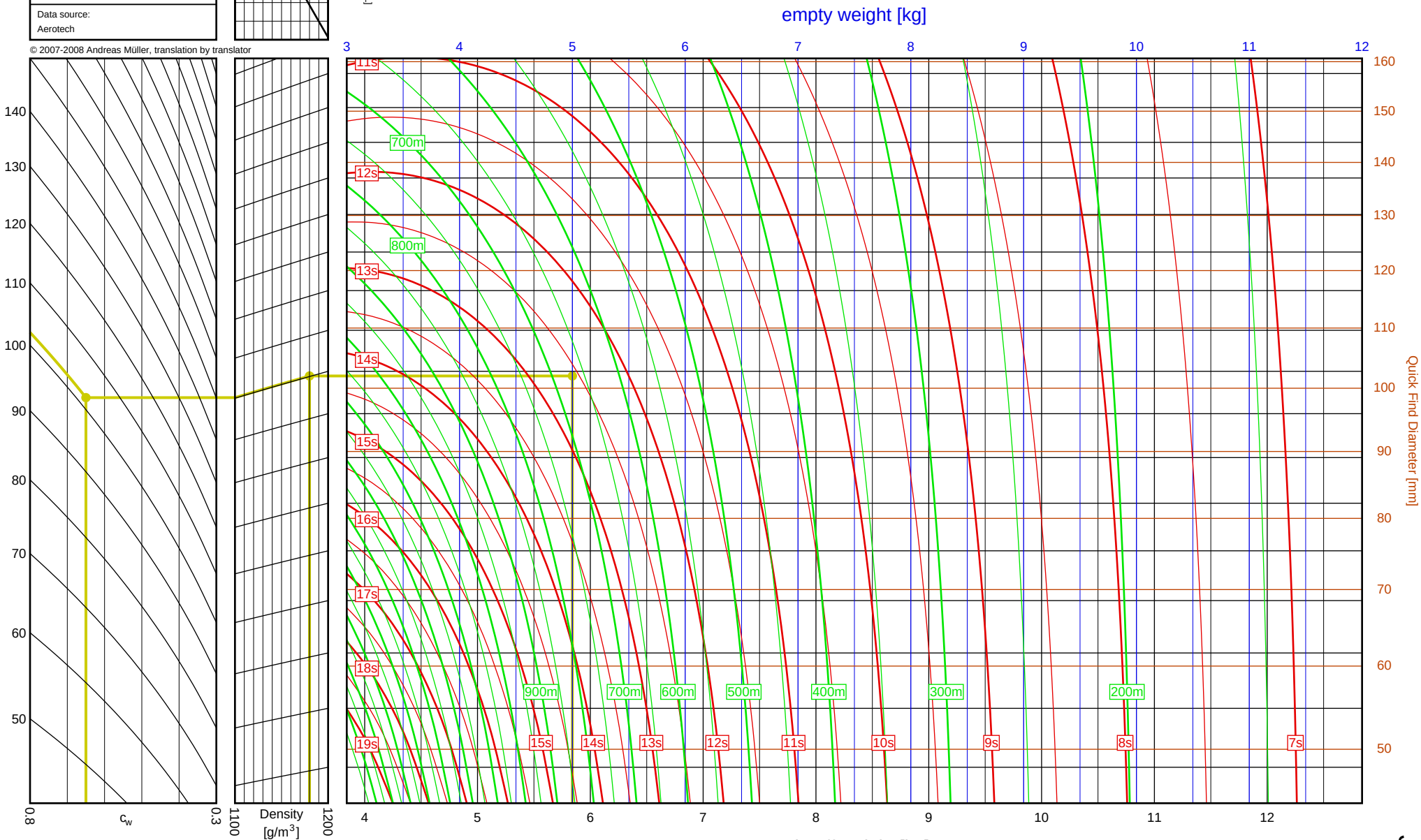
I_{tot}	=	825.8 Ns
F_{avg}	=	183.5 N
t_{burn}	=	4.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.841kg
Results: time to apogee: 12.6s, expected altitude: 669m



7-11

J180T

4", J-K

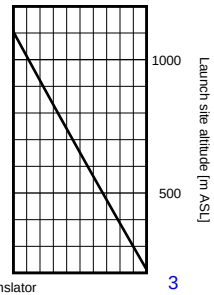
7

J180T

Aerotech J1299N

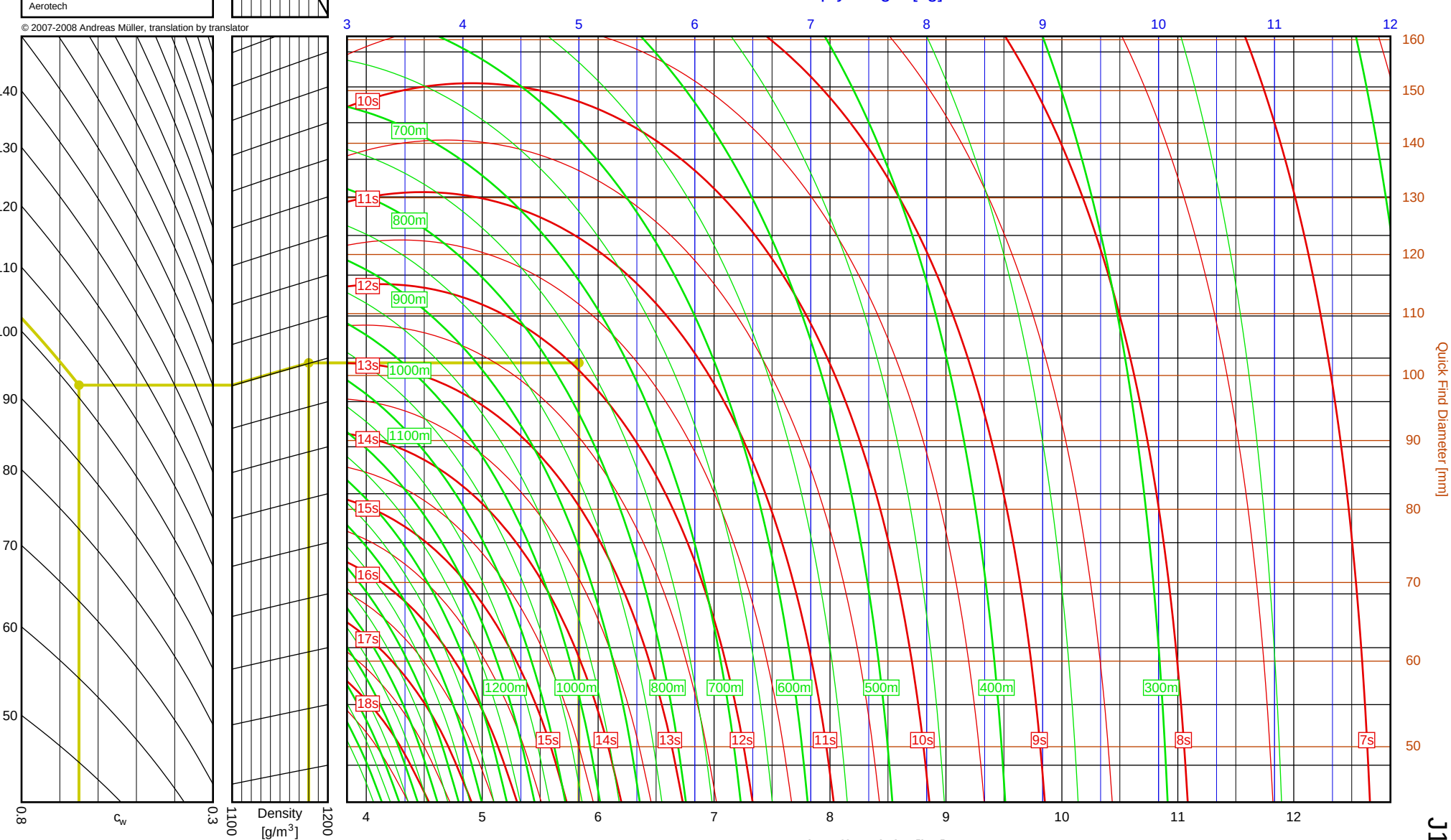
I_{tot}	=	850.2 Ns
F_{avg}	=	1254.0 N
t_{burn}	=	0.68 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.834kg
Results: time to apogee: 11.9s, expected altitude: 762m



J1299N

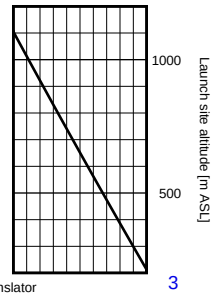
4", J-K

J1299N

Aerotech J210H

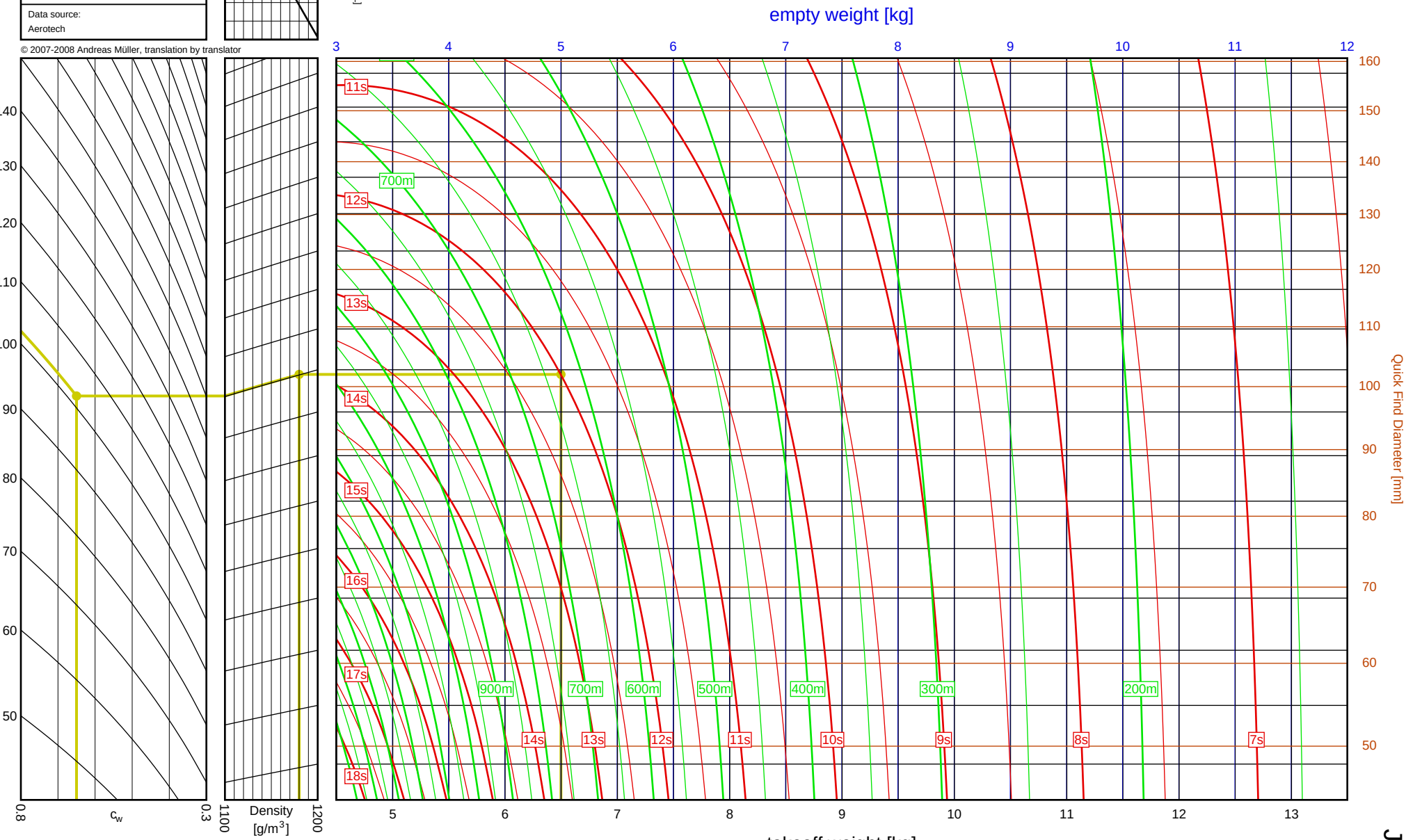
I_{tot}	=	853.8 Ns
F_{avg}	=	213.5 N
t_{burn}	=	4.00 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.497kg
Results: time to apogee: 12.0s, expected altitude: 628m



4", J-K

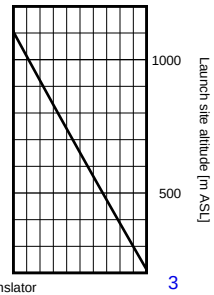
Aerotech J825R

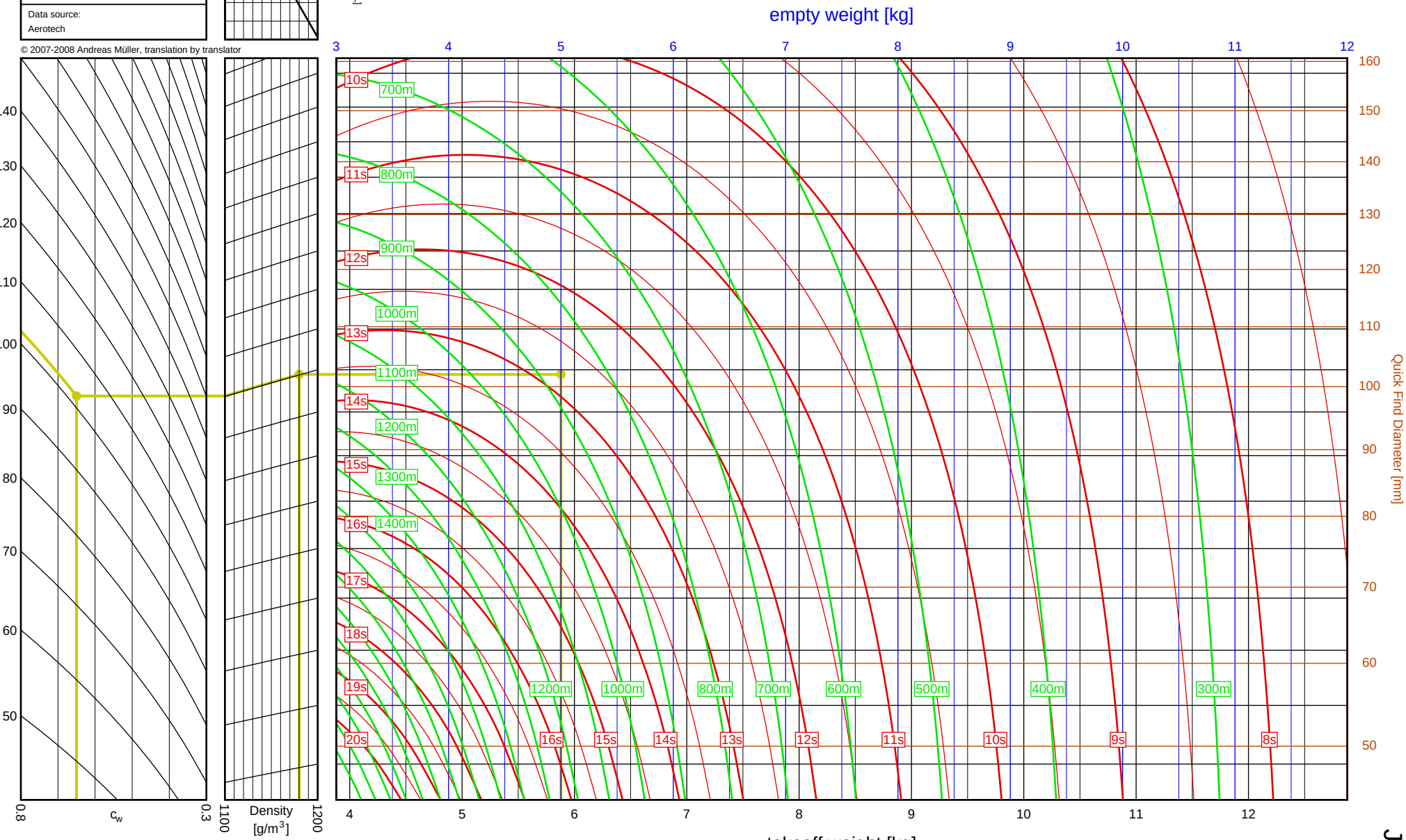
I_{tot}	=	928.0 Ns
F_{avg}	=	786.4 N
t_{burn}	=	1.18 s
d	=	38 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.880kg
Results: time to apogee: 12.8s, expected altitude: 868m





J825R

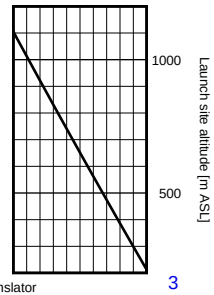
4", J-K

J825R

Aerotech J135W

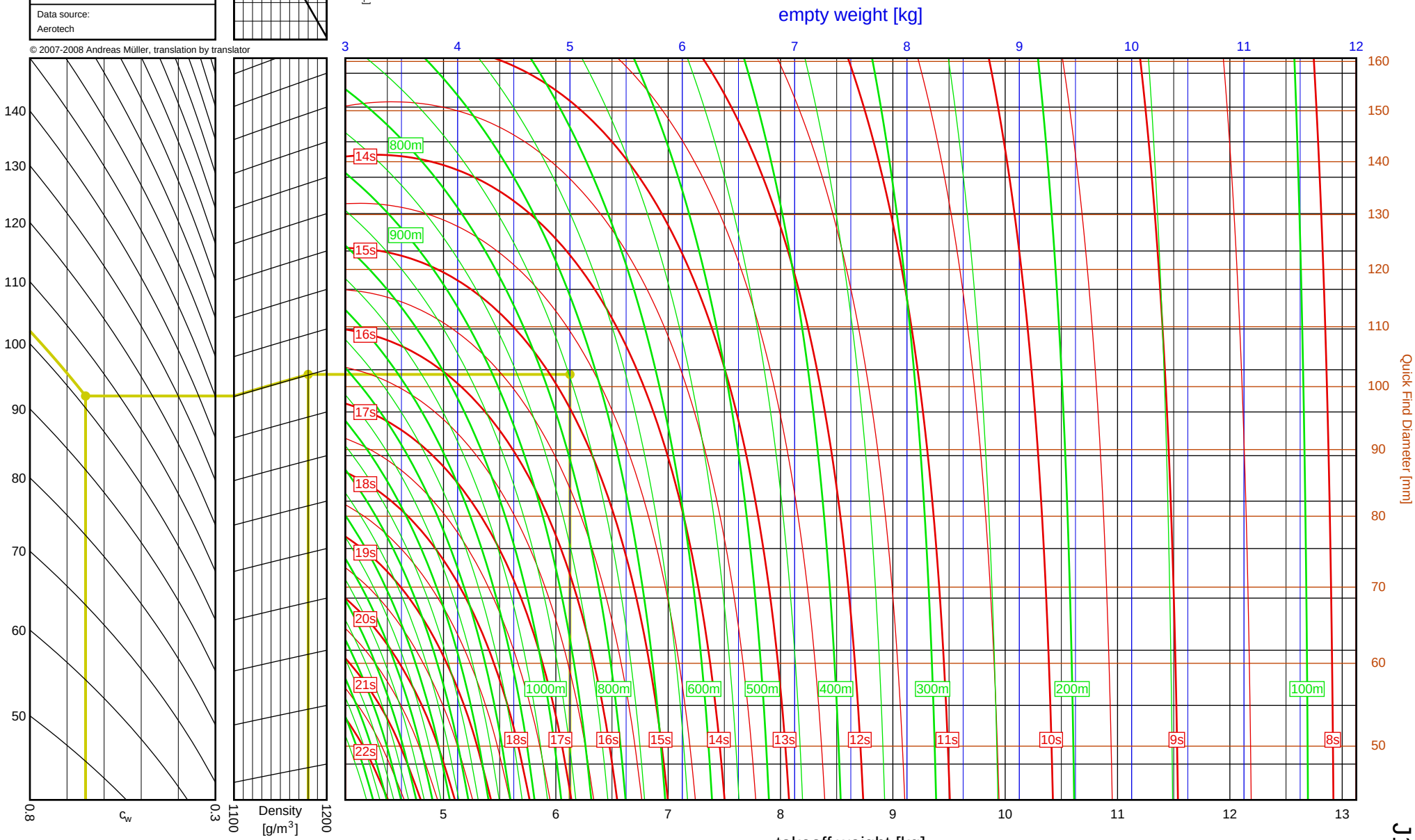
I_{tot}	=	989.2 Ns
F_{avg}	=	141.3 N
t_{burn}	=	7.00 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

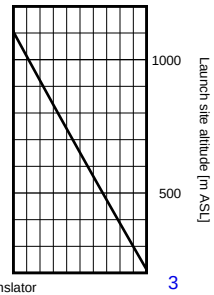
Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.126kg
Results: time to apogee: 14.8s, expected altitude: 748m



Aerotech J570W

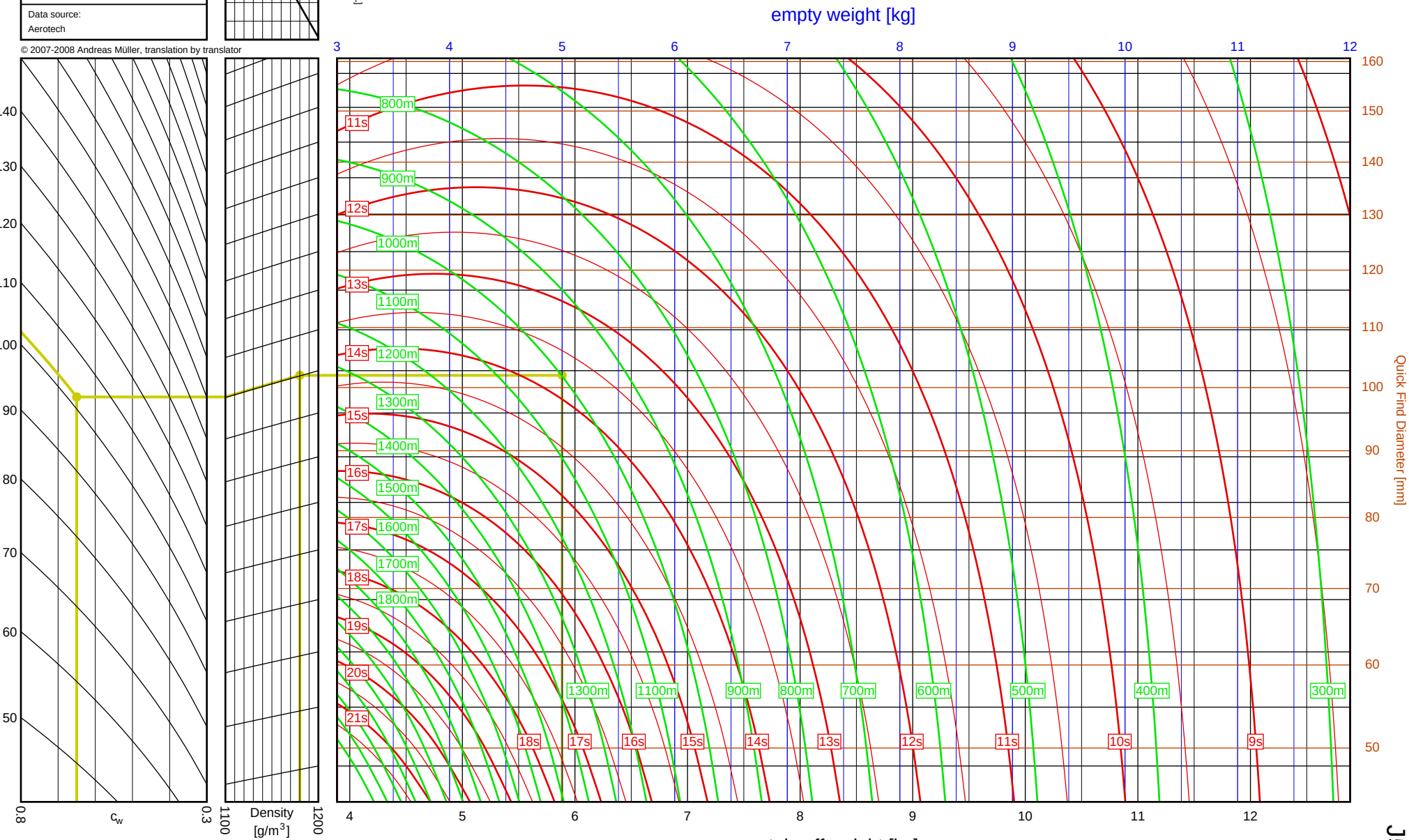
I_{tot}	=	1033.8 Ns
F_{avg}	=	503.8 N
t_{burn}	=	2.05 s
d	=	38 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.886kg
Results: time to apogee: 13.8s, expected altitude: 999m



J570W

4", J-K

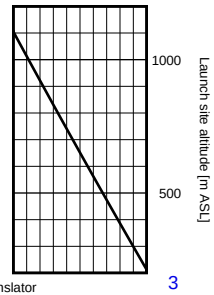
J570W

Aerotech

J401FJ

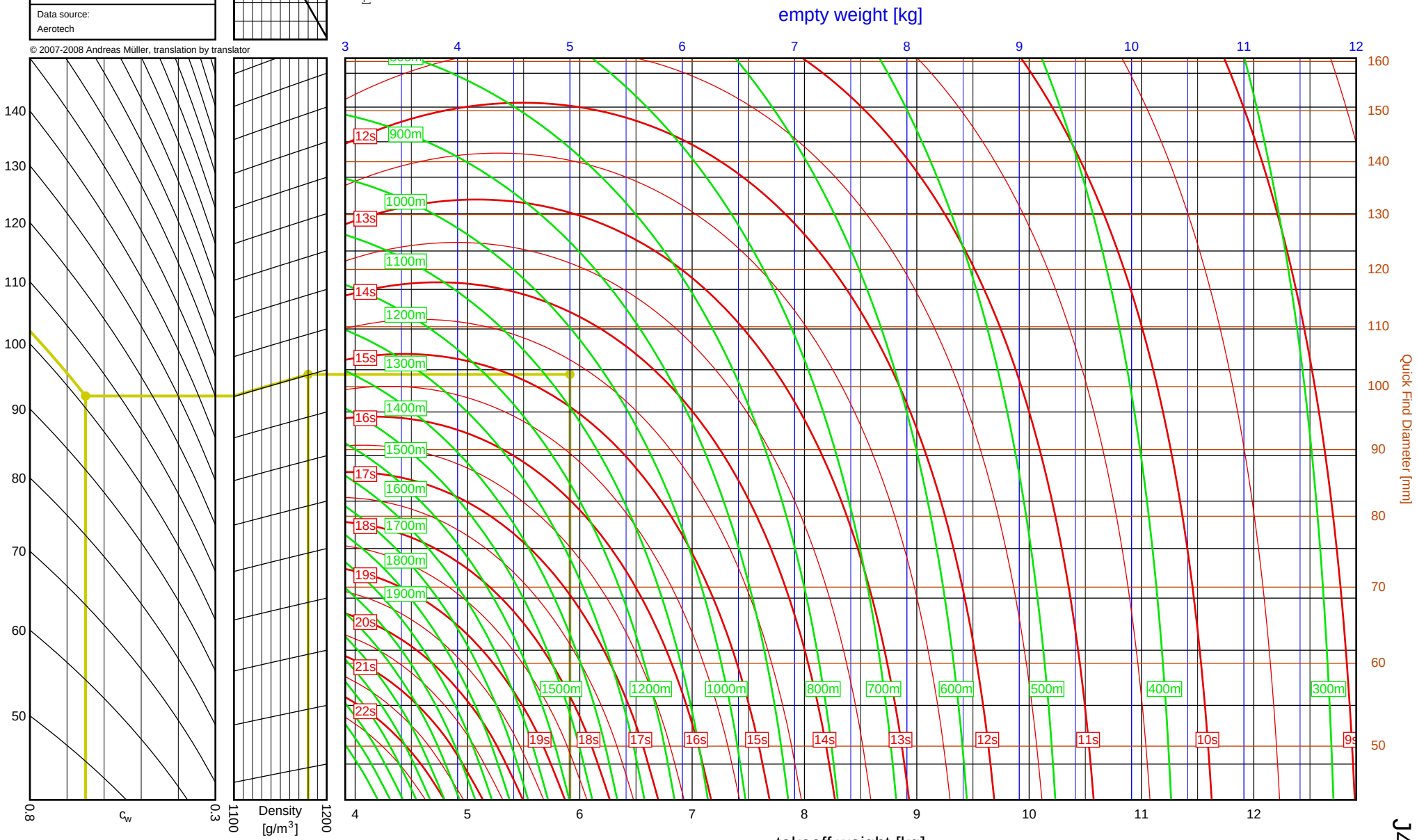
I_{tot}	=	1107.6 Ns
F_{avg}	=	398.0 N
t_{burn}	=	2.78 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.912kg
Results: time to apogee: 14.7s, expected altitude: 1059m



J401FJ

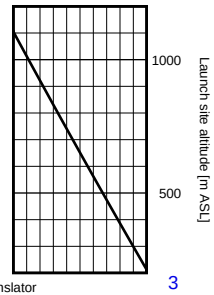
4", J-K

J401FJ

Aerotech J540R

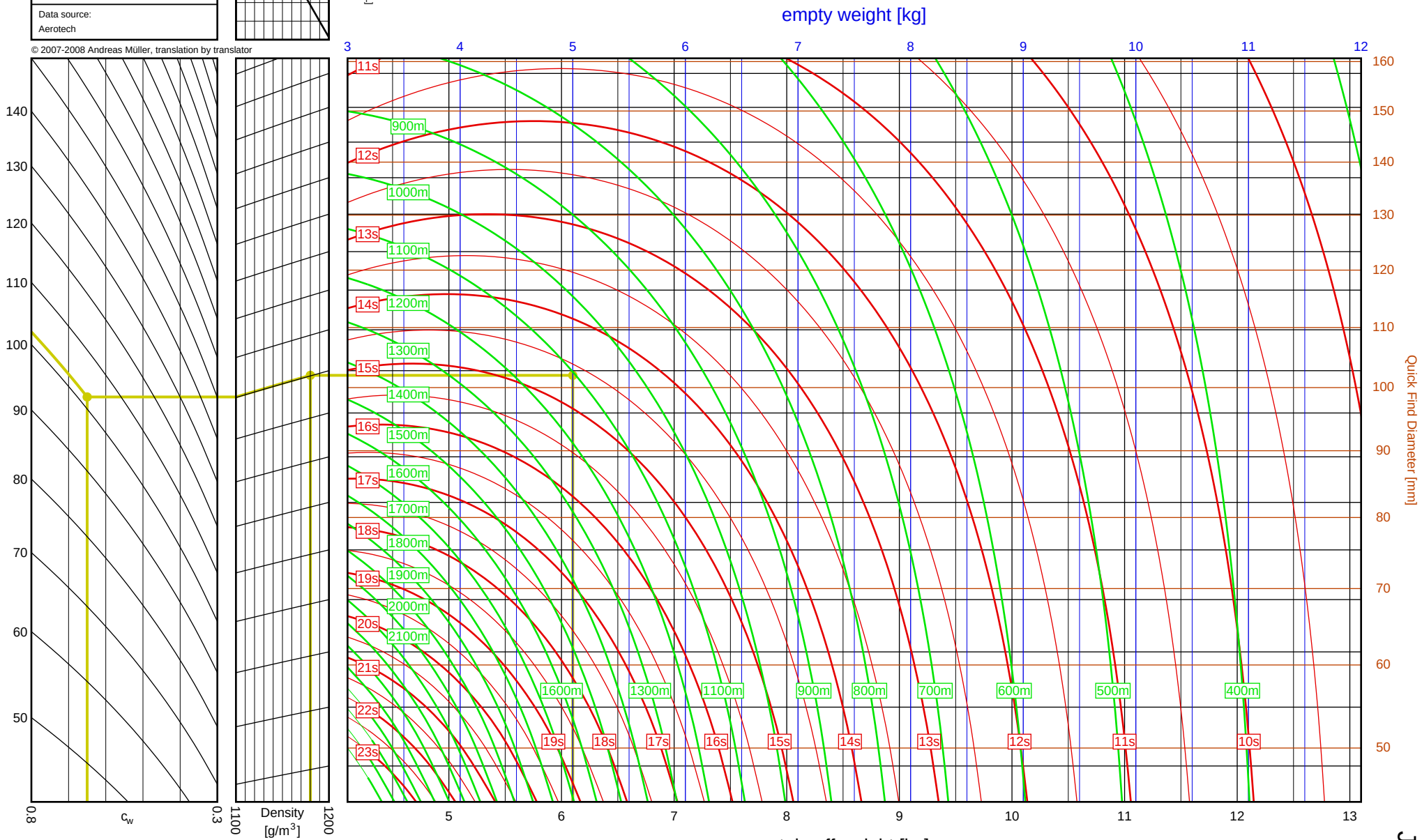
I_{tot}	=	1149.7 Ns
F_{avg}	=	511.0 N
t_{burn}	=	2.25 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.100kg
Results: time to apogee: 14.6s, expected altitude: 1105m



J540R

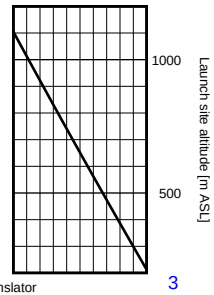
4", J-K

J540R

Aerotech J260HW

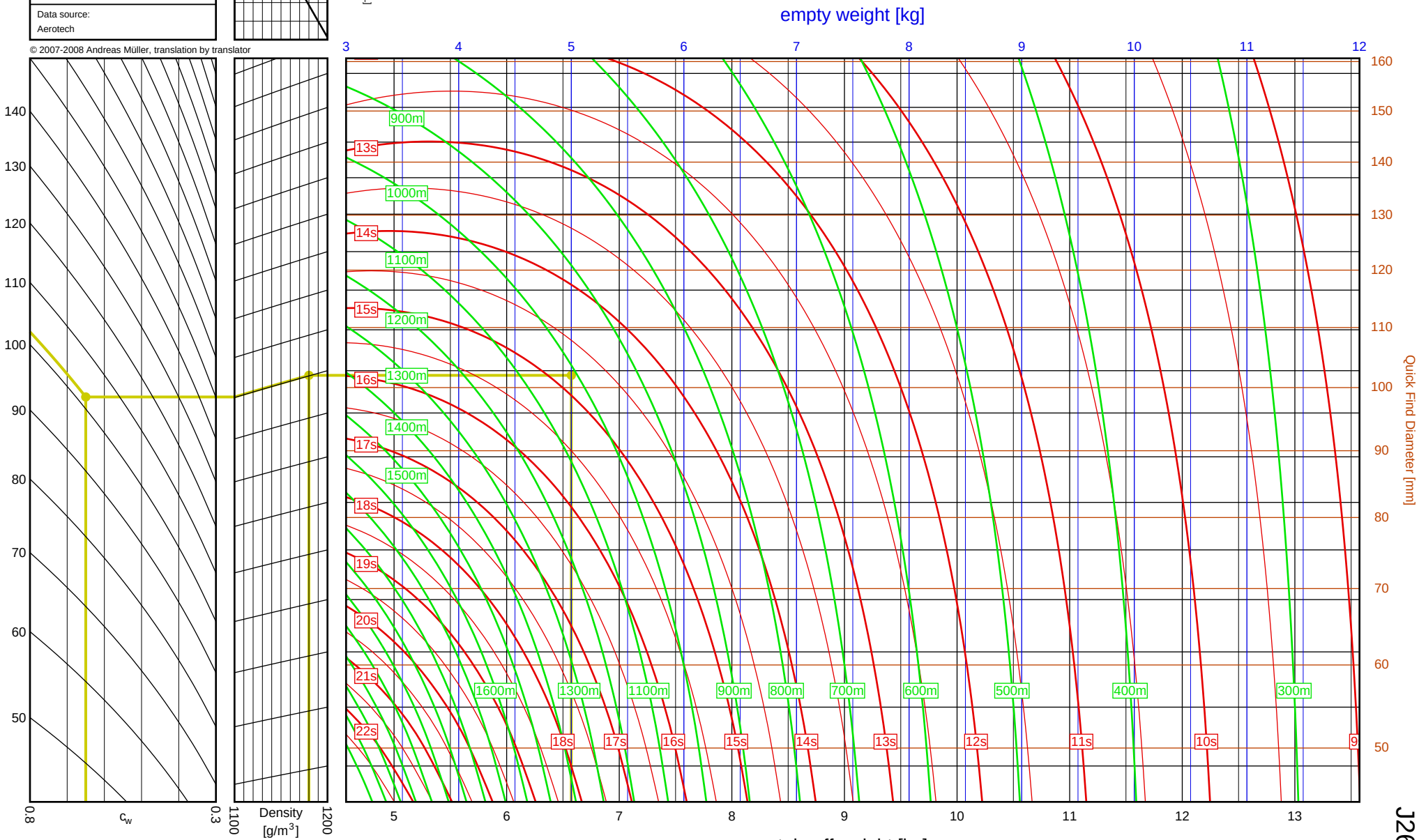
I_{tot}	=	1170.2 Ns
F_{avg}	=	260.0 N
t_{burn}	=	4.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.574kg
Results: time to apogee: 14.8s, expected altitude: 1011m



J260HW

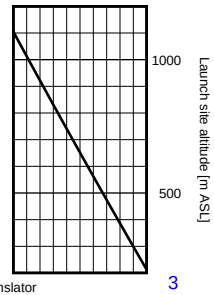
4", J-K

J260HW

Aerotech J415W

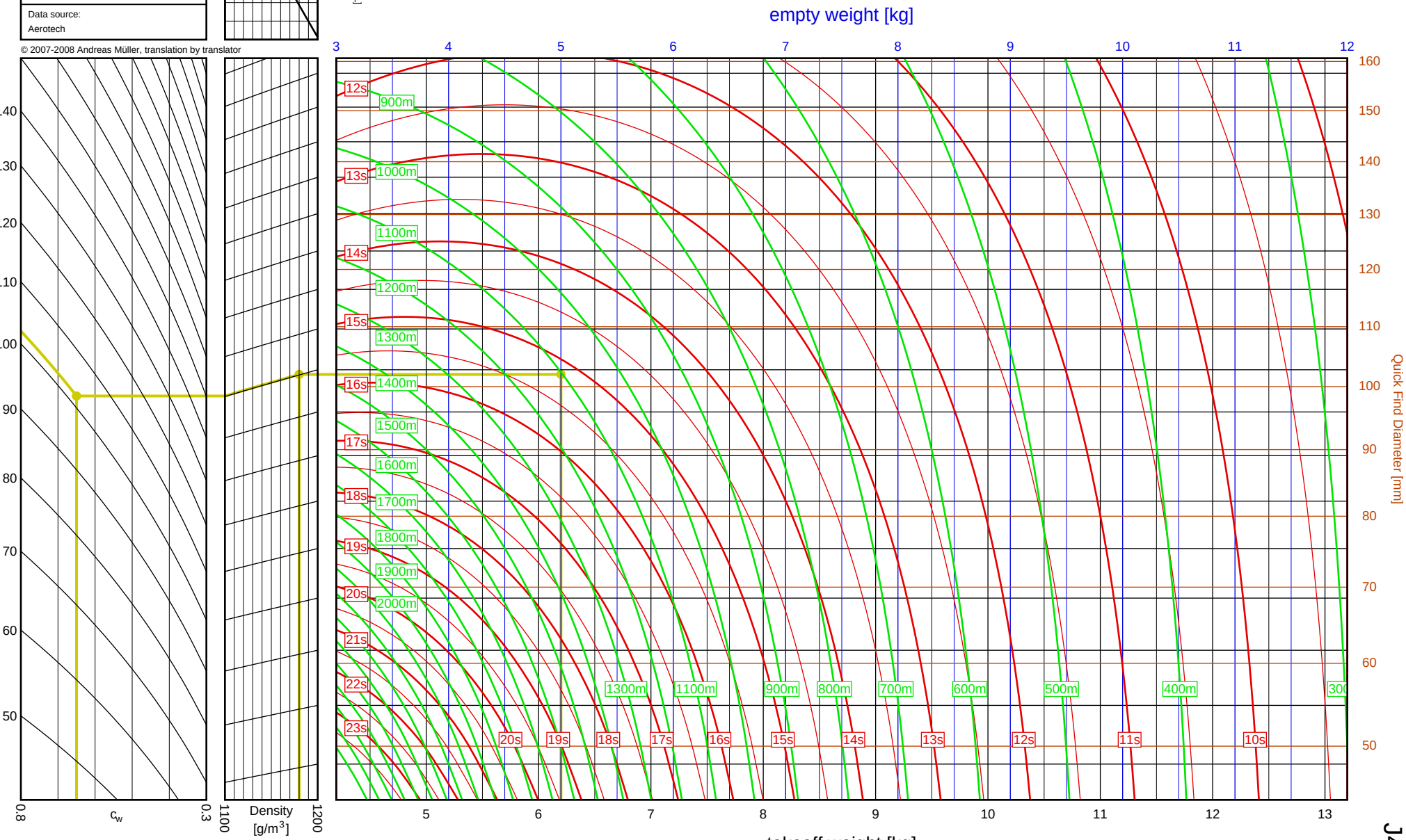
I_{tot}	=	1173.7 Ns
F_{avg}	=	335.4 N
t_{burn}	=	3.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.199kg
Results: time to apogee: 15.2s, expected altitude: 1103m



4", J-K

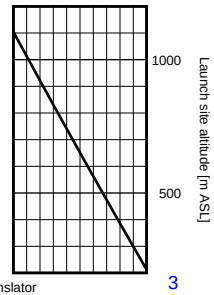
J415W

J415W

Aerotech J800T

I_{tot}	=	1202.0 Ns
F_{avg}	=	751.3 N
t_{burn}	=	1.60 s
d	=	54 mm

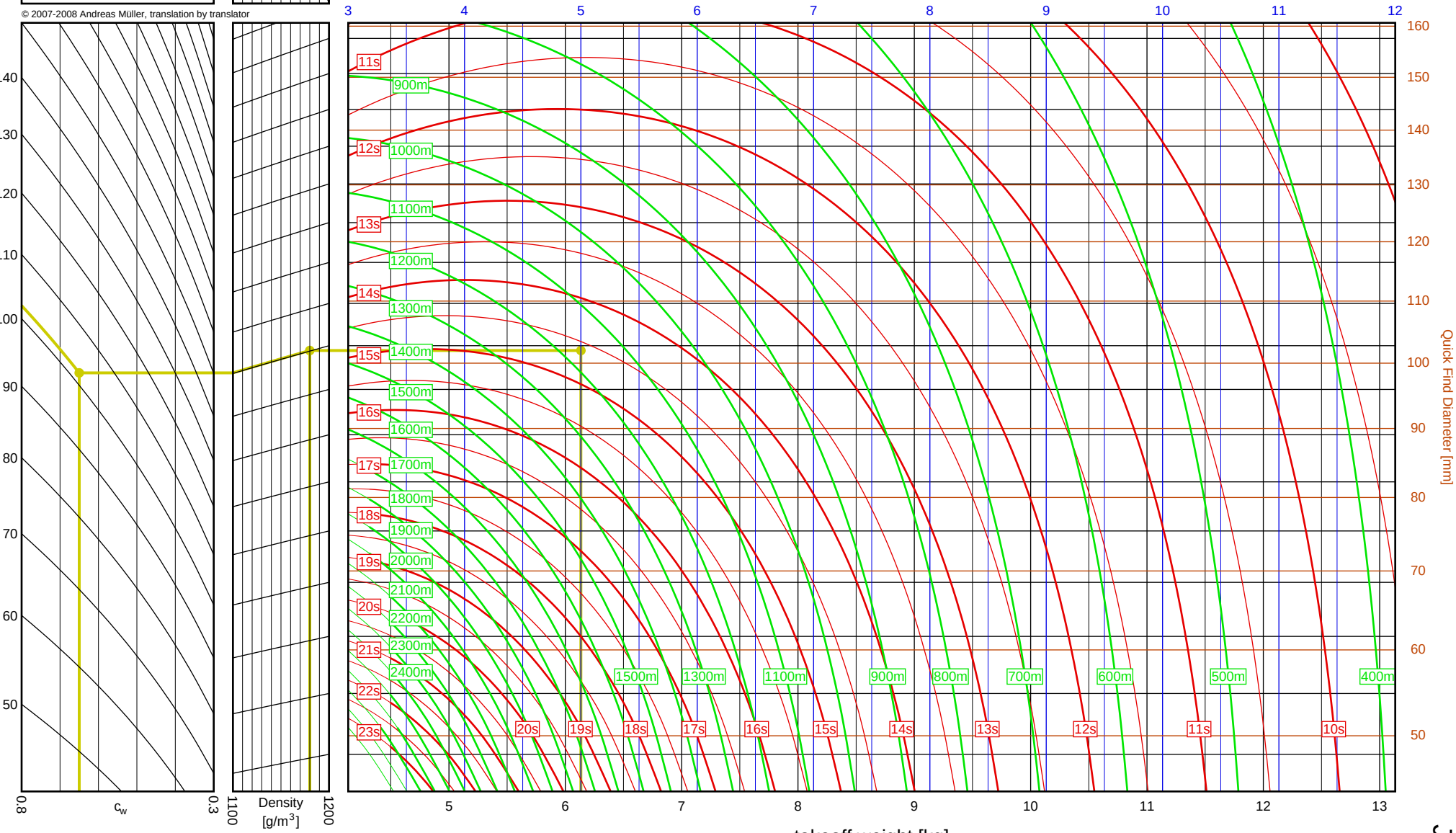
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.134kg

Results: time to apogee: 14.6s, expected altitude: 1168m



7-21

J800T

4", J-K

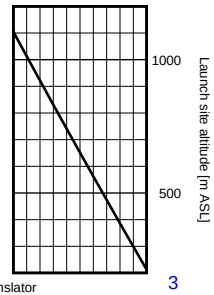
7

J800T

Aerotech J1999N

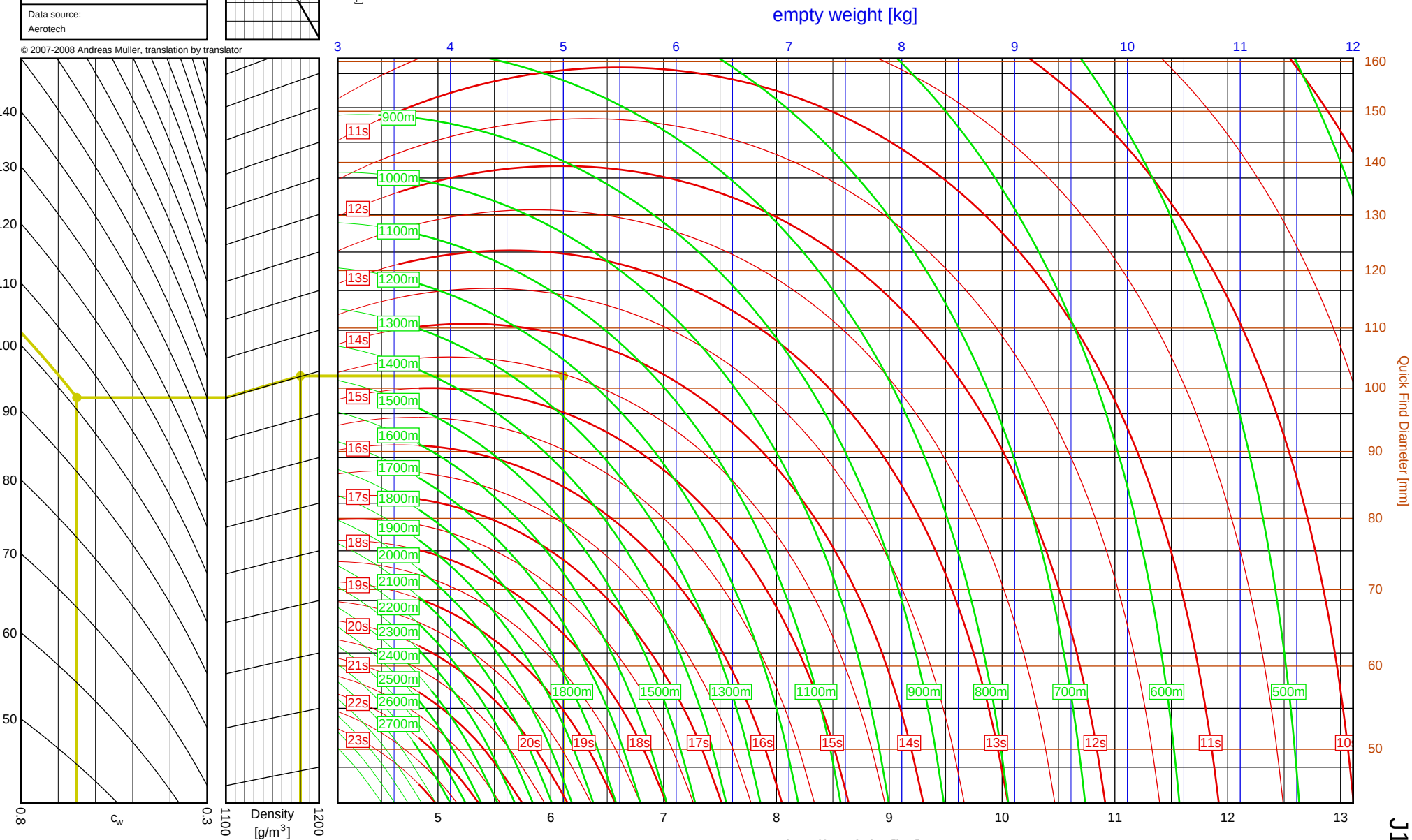
I_{tot}	=	1250.3 Ns
F_{avg}	=	1866.2 N
t_{burn}	=	0.67 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.111kg
Results: time to apogee: 14.5s, expected altitude: 1229m



4", J-K

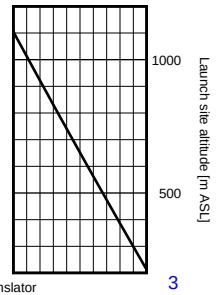
J1999N

J1999N

Aerotech J390HW-TURBO

I_{tot}	=	1279.1 Ns
F_{avg}	=	365.5 N
t_{burn}	=	3.50 s
d	=	54 mm

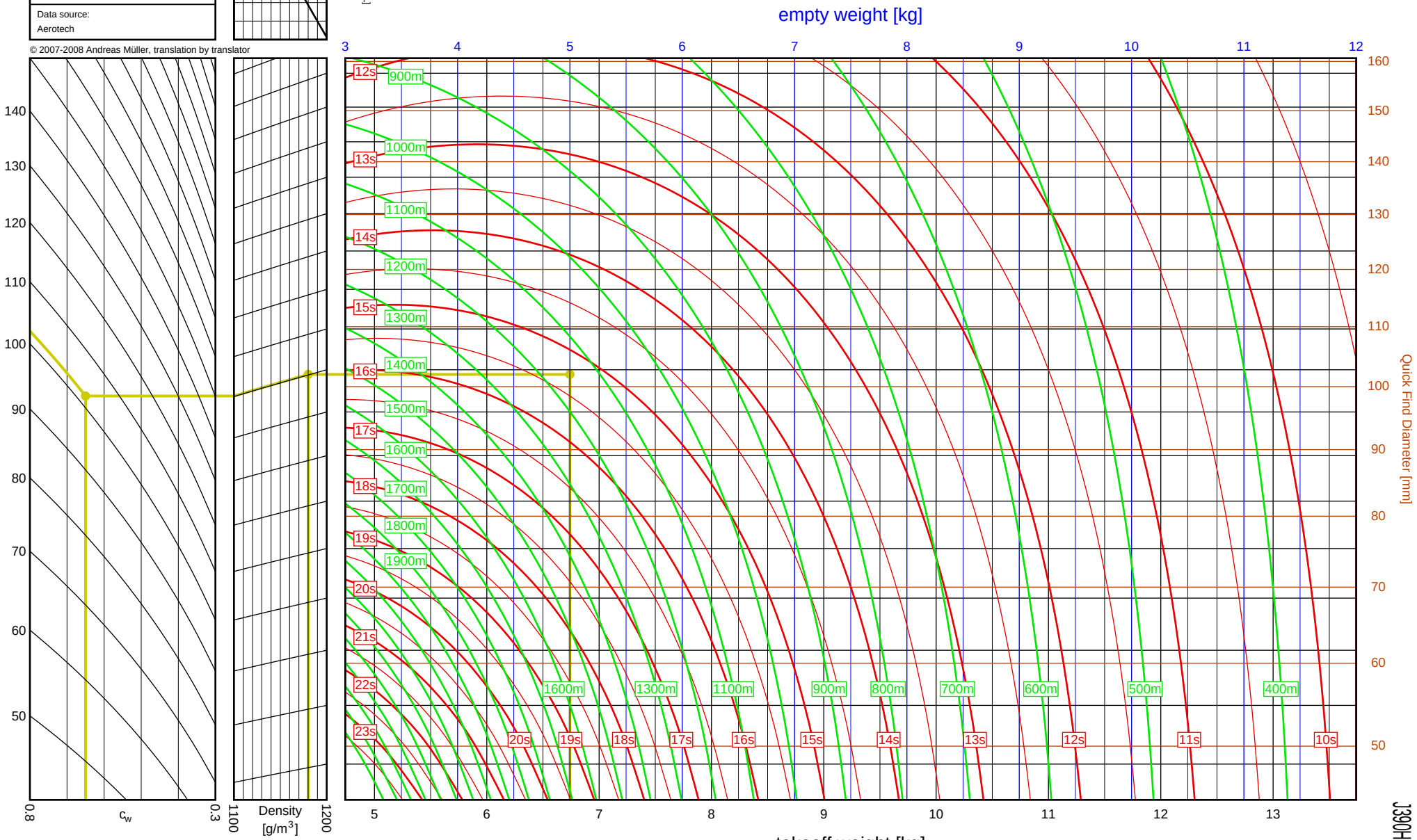
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.740kg

Results: time to apogee: 15.3s, expected altitude: 1150m



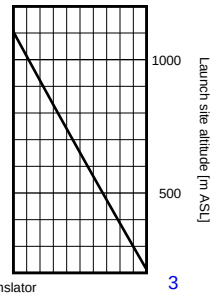
Aerotech K1499N

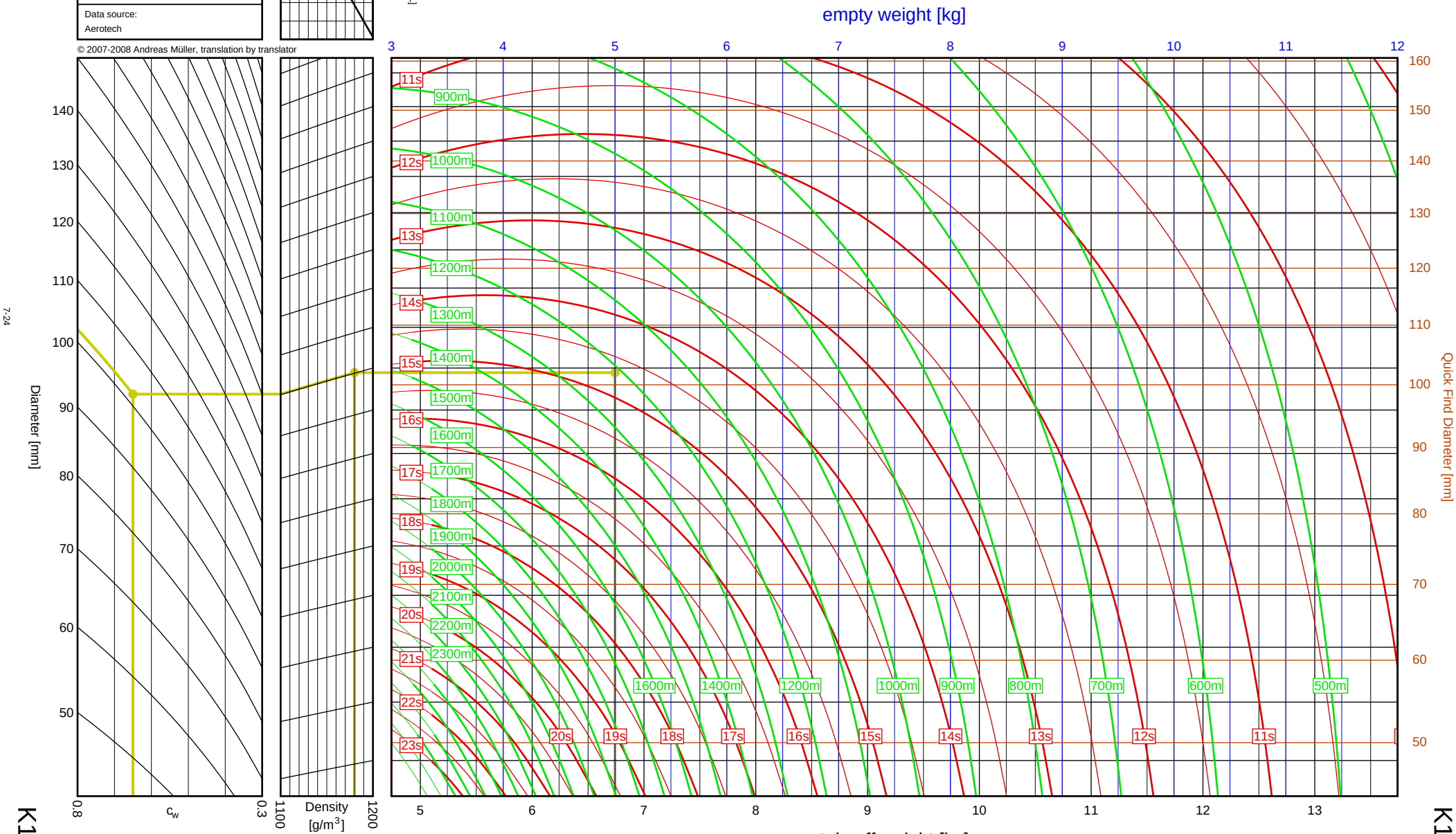
I_{tot}	=	1320.4 Ns
F_{avg}	=	1500.5 N
t_{burn}	=	0.88 s
d	=	75 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.741kg
Results: time to apogee: 14.7s, expected altitude: 1212m





4", J-K

K1499N

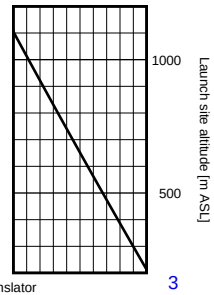
K1499N

Aerotech

K185W

I_{tot}	=	1378.6 Ns
F_{avg}	=	178.7 N
t_{burn}	=	7.71 s
d	=	54 mm

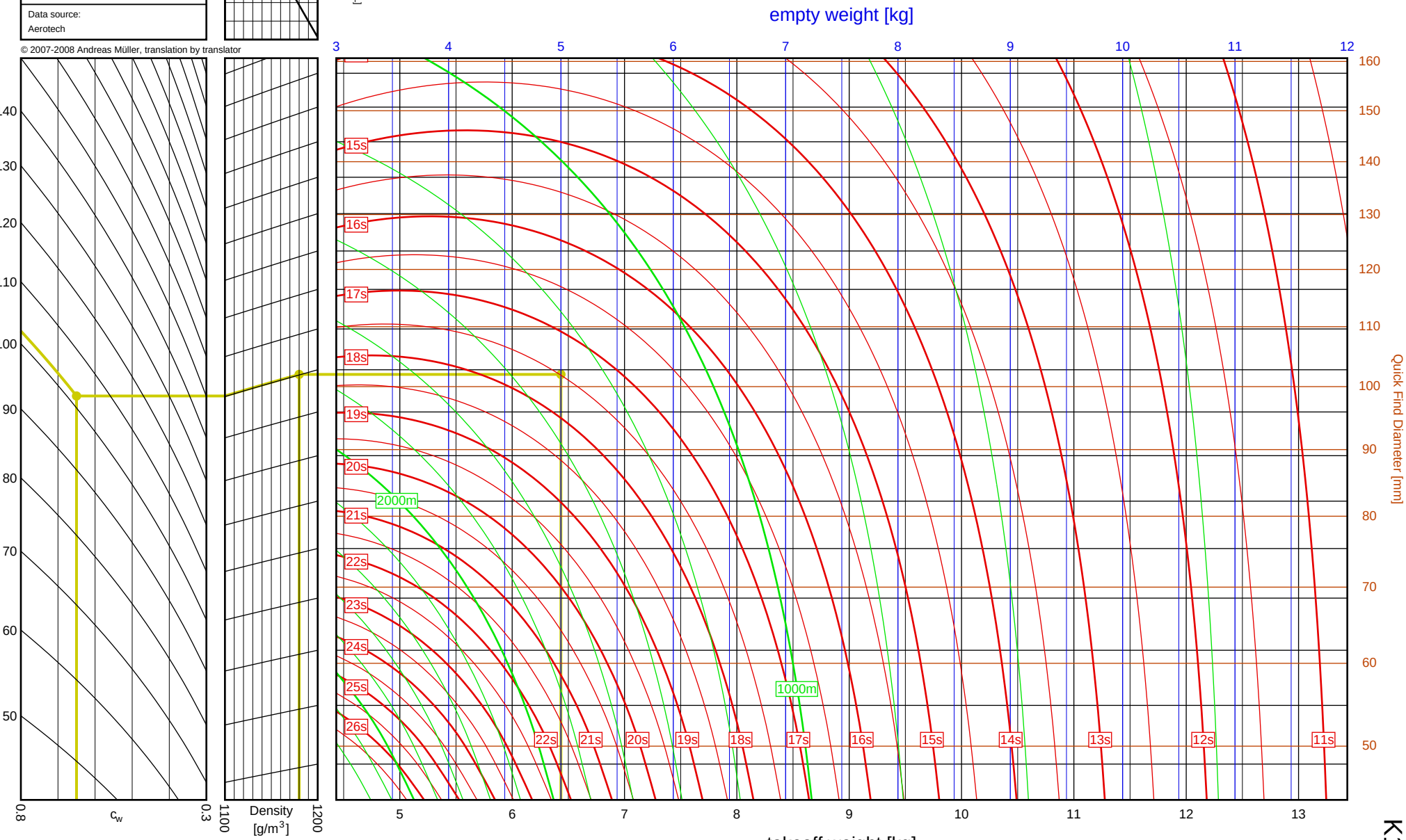
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.434kg

Results: time to apogee: 17.5s, expected altitude: 1293m



7-25

K185W

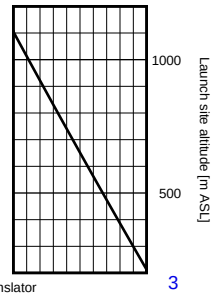
K185W

4", J-K

Aerotech K513FJ

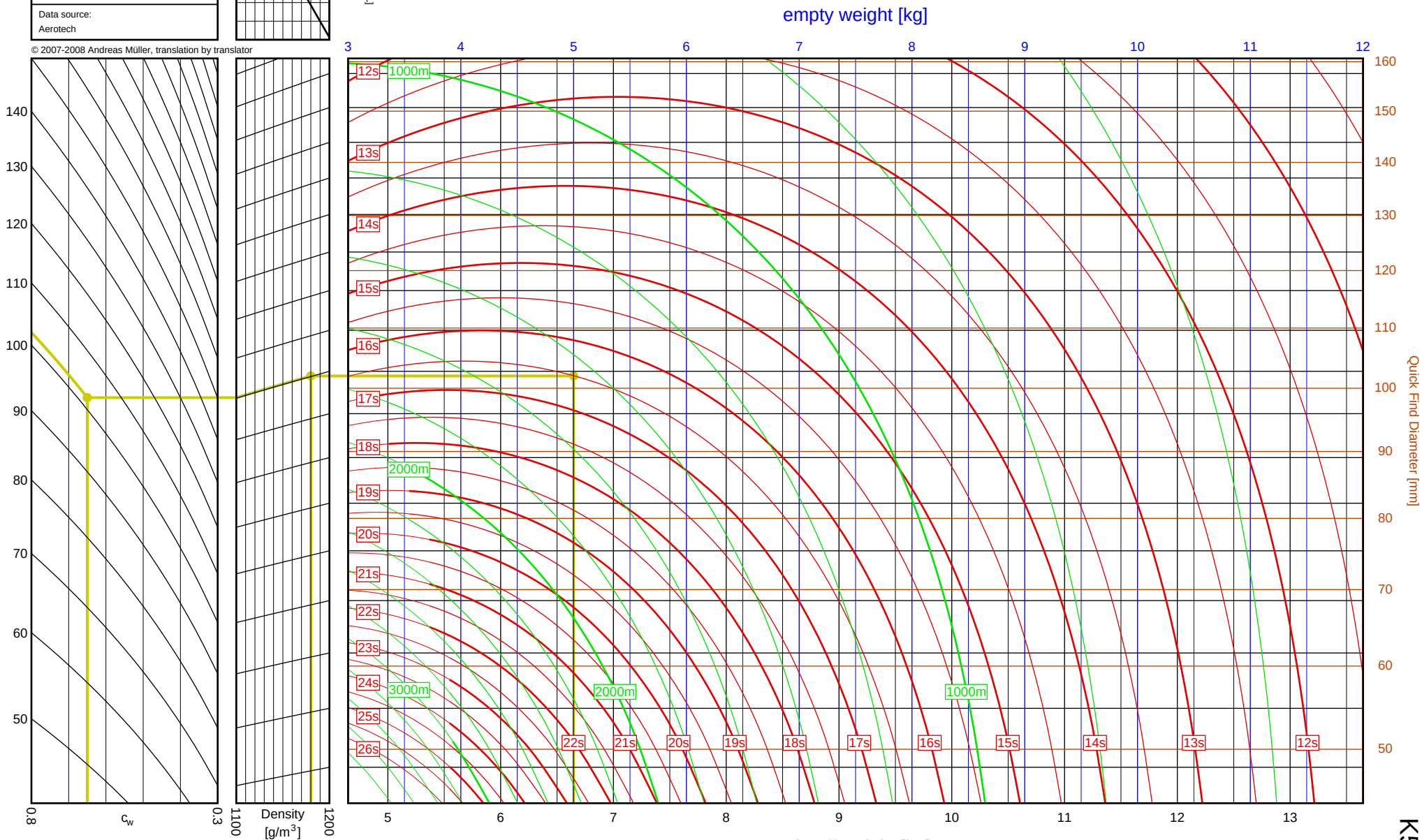
I_{tot}	=	1474.9 Ns
F_{avg}	=	541.0 N
t_{burn}	=	2.73 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.647kg
Results: time to apogee: 16.5s, expected altitude: 1444m



K513FJ

4", J-K

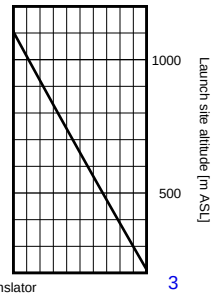
K513FJ

Aerotech

K695R

I_{tot}	=	1496.5 Ns
F_{avg}	=	665.1 N
t_{burn}	=	2.25 s
d	=	54 mm

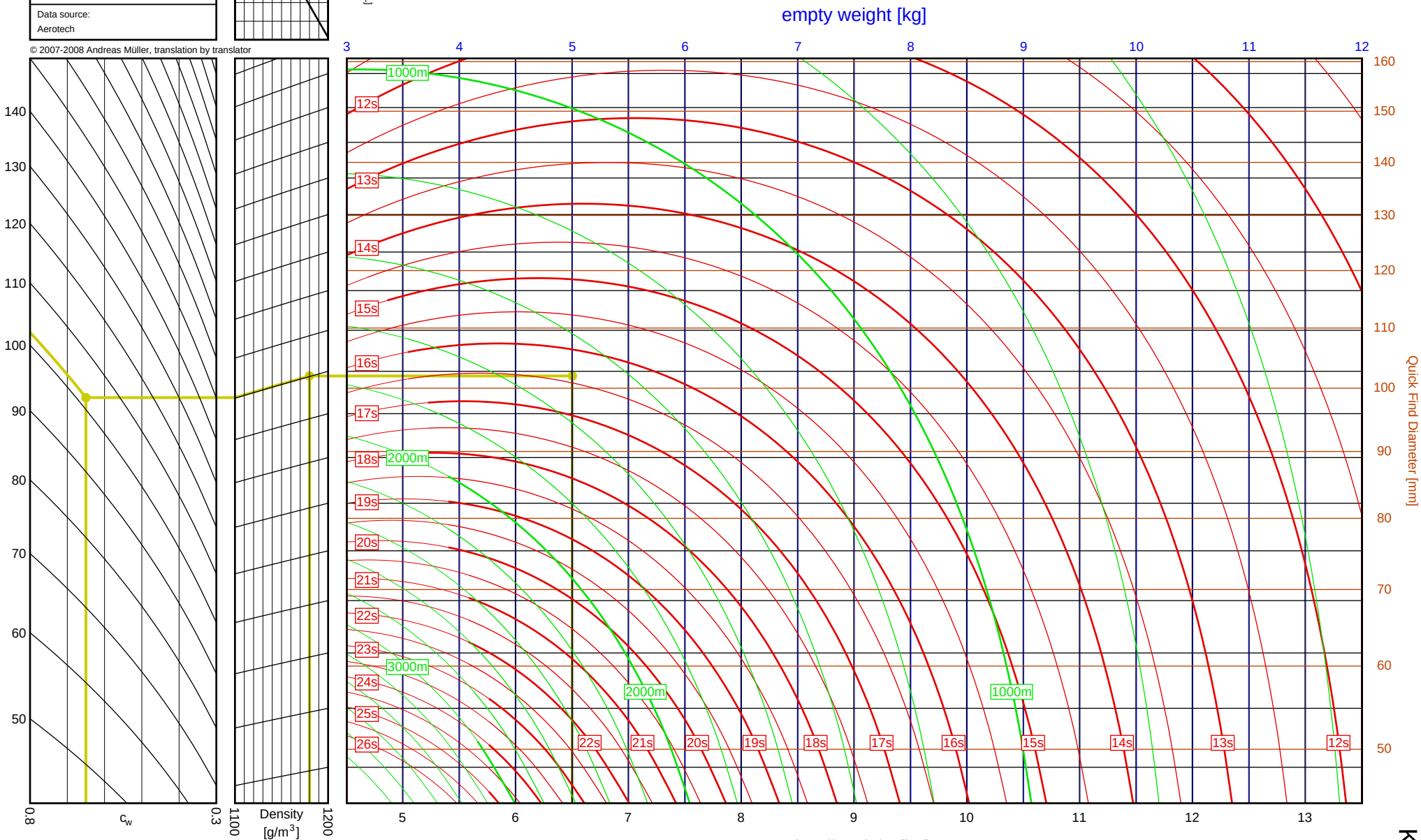
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.506kg

Results: time to apogee: 16.4s, expected altitude: 1493m



4", J-K

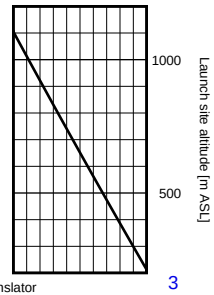
K695R

K695R

Aerotech K1100T

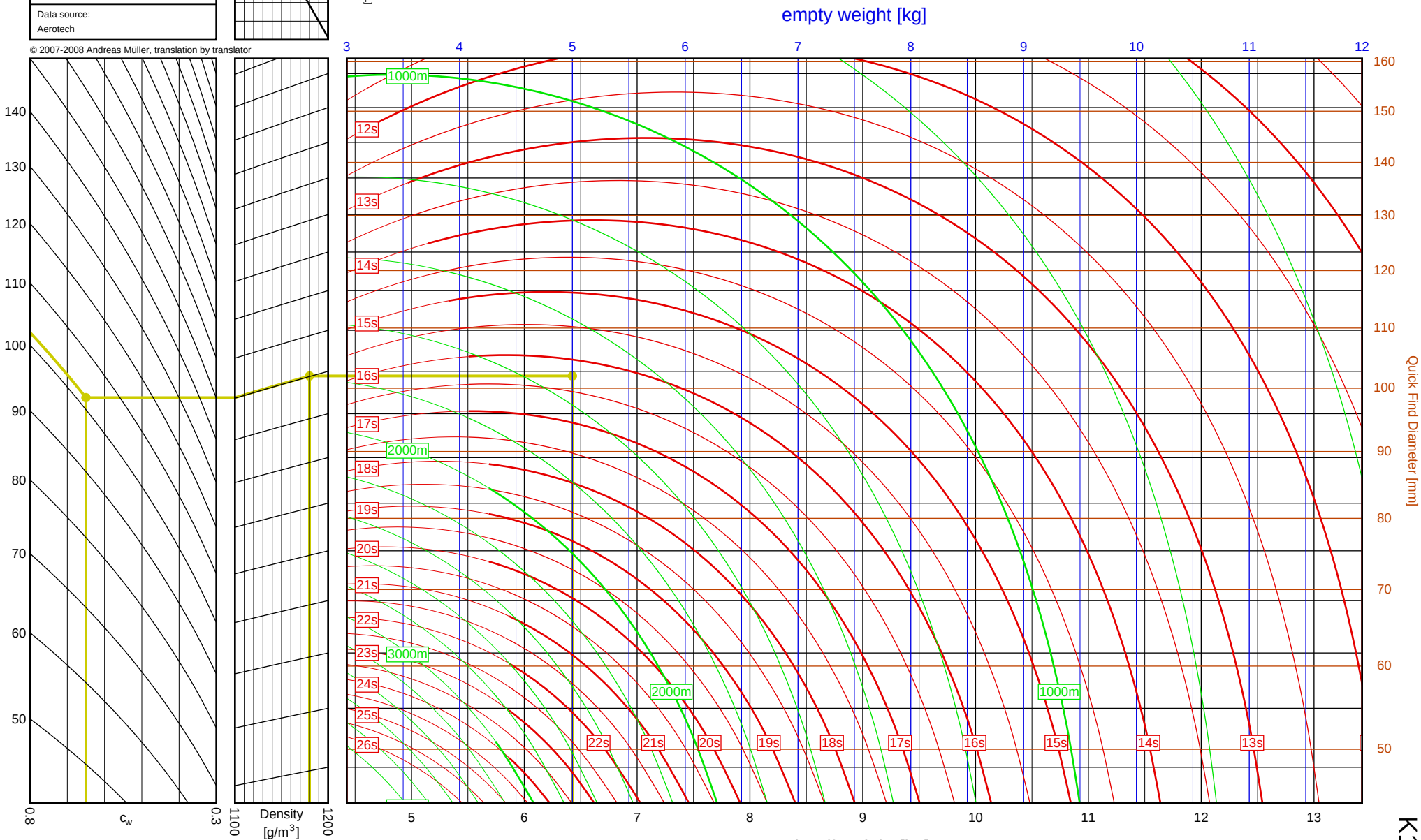
I_{tot}	=	1537.5 Ns
F_{avg}	=	960.9 N
t_{burn}	=	1.60 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.426kg
Results: time to apogee: 16.3s, expected altitude: 1531m

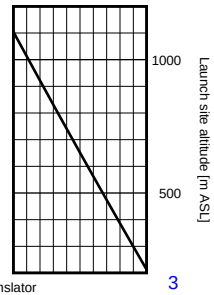


K1100T
K1100T

Aerotech K550W

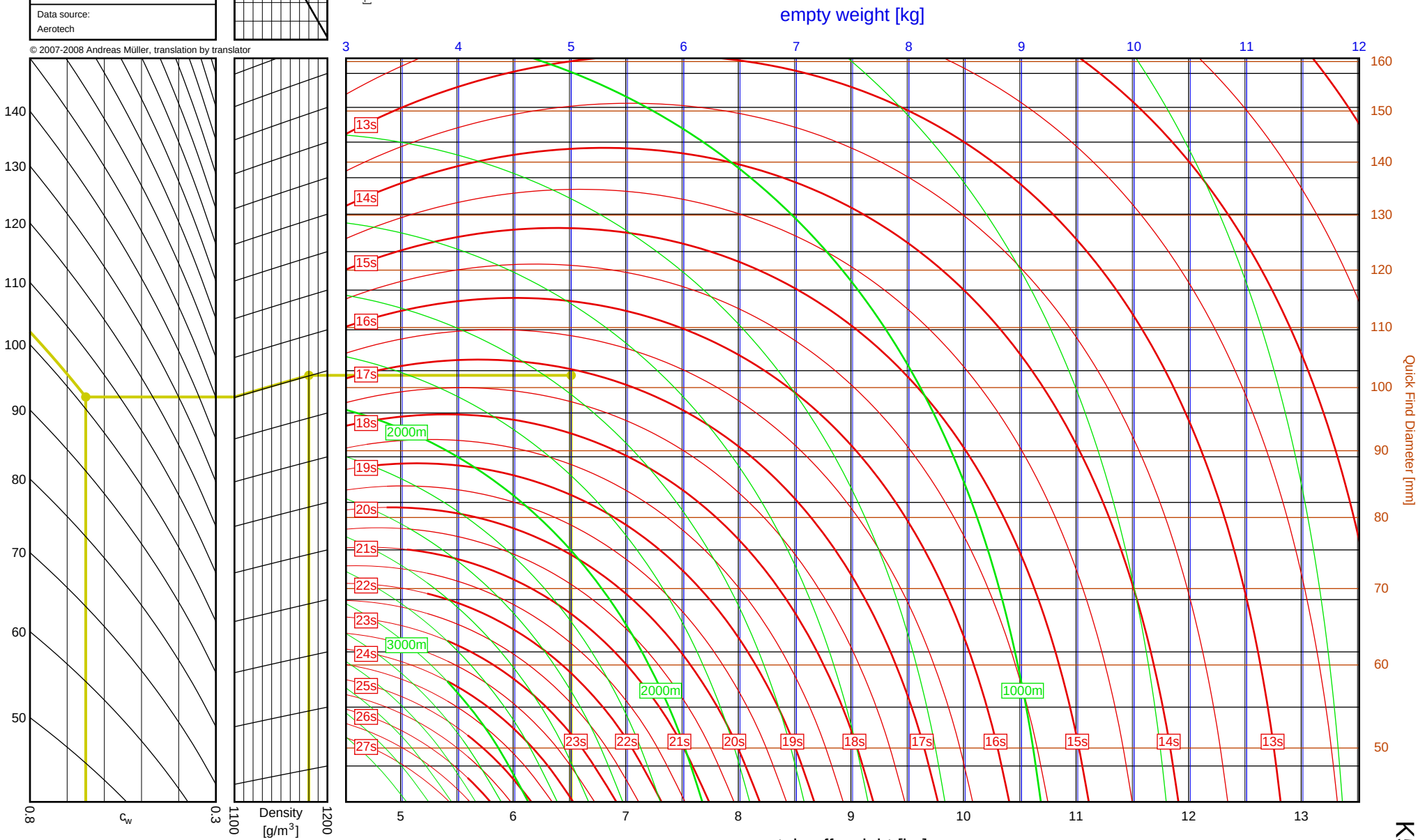
I_{tot}	=	1563.1 Ns
F_{avg}	=	446.6 N
t_{burn}	=	3.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.515kg
Results: time to apogee: 17.1s, expected altitude: 1557m



4", J-K

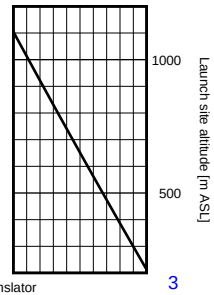
K550W

K550W

Aerotech K485HW

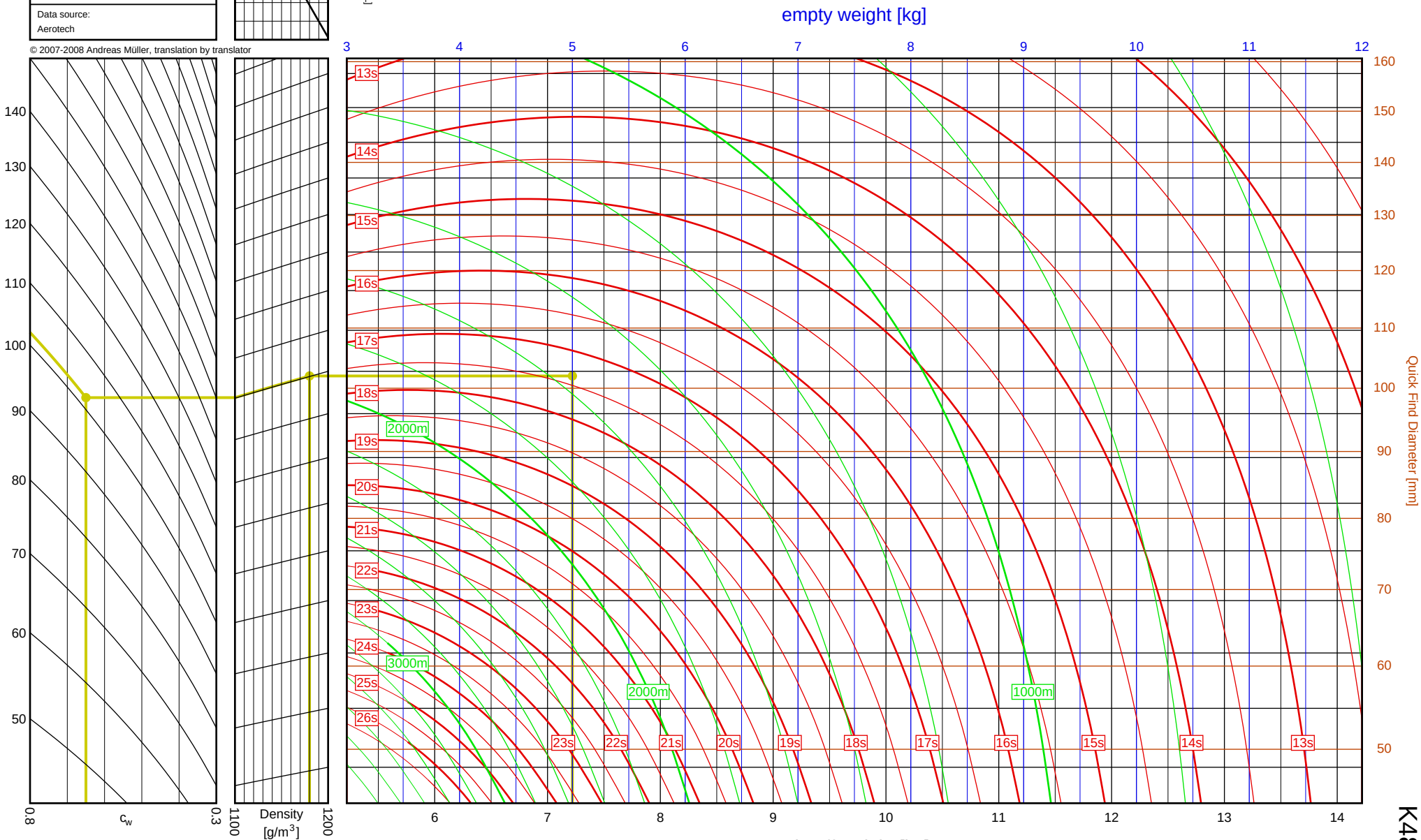
I_{tot}	=	1682.2 Ns
F_{avg}	=	431.5 N
t_{burn}	=	3.90 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 7.220kg
Results: time to apogee: 17.4s, expected altitude: 1562m



K485HW

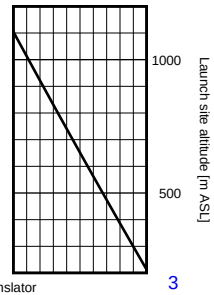
4", J-K

K485HW

Aerotech K805G

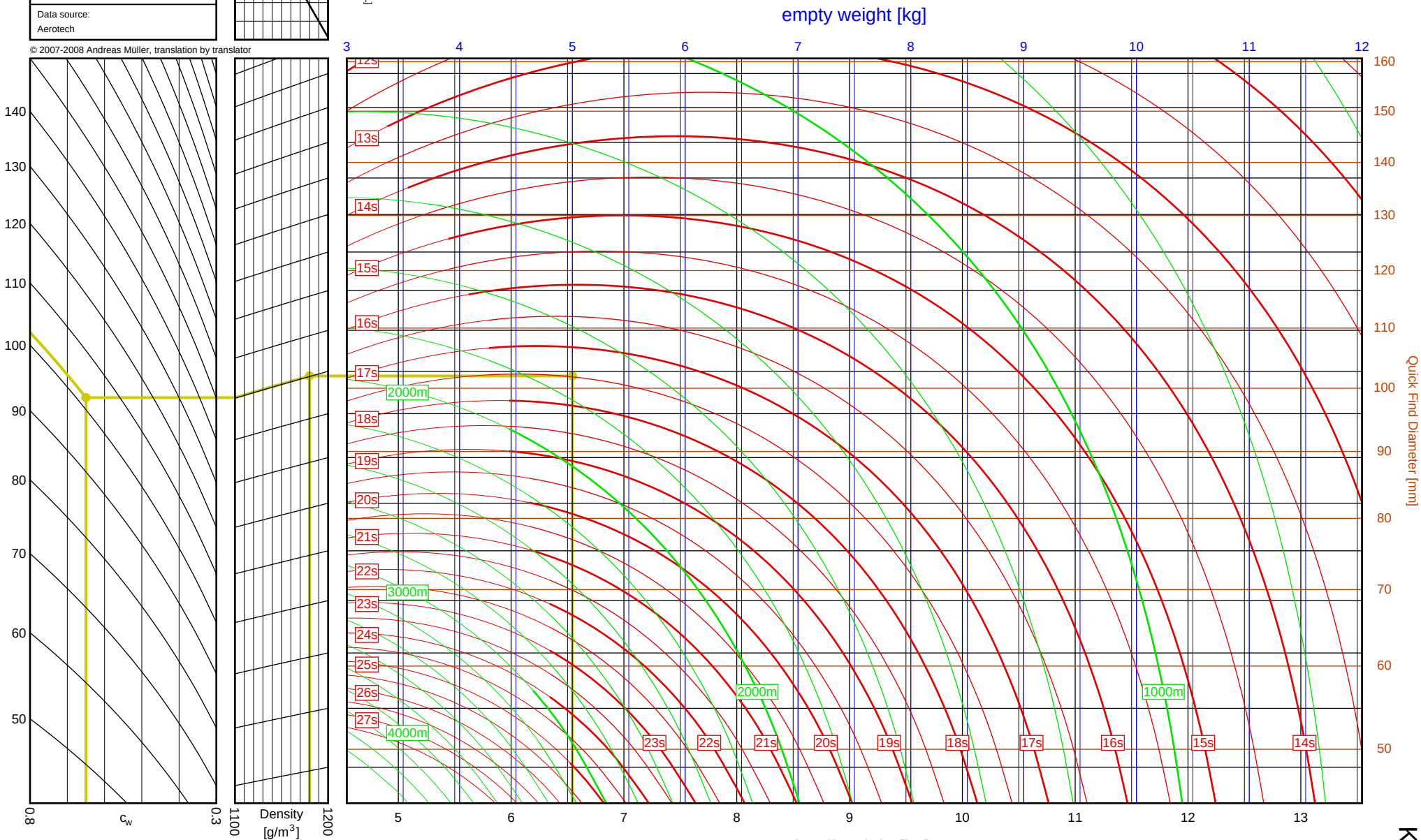
I_{tot}	=	1730.0 Ns
F_{avg}	=	720.8 N
t_{burn}	=	2.40 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.543kg
Results: time to apogee: 17.5s, expected altitude: 1733m



4", J-K

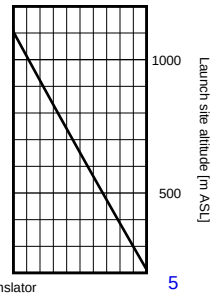
K805G

K805G

Aerotech K1499N

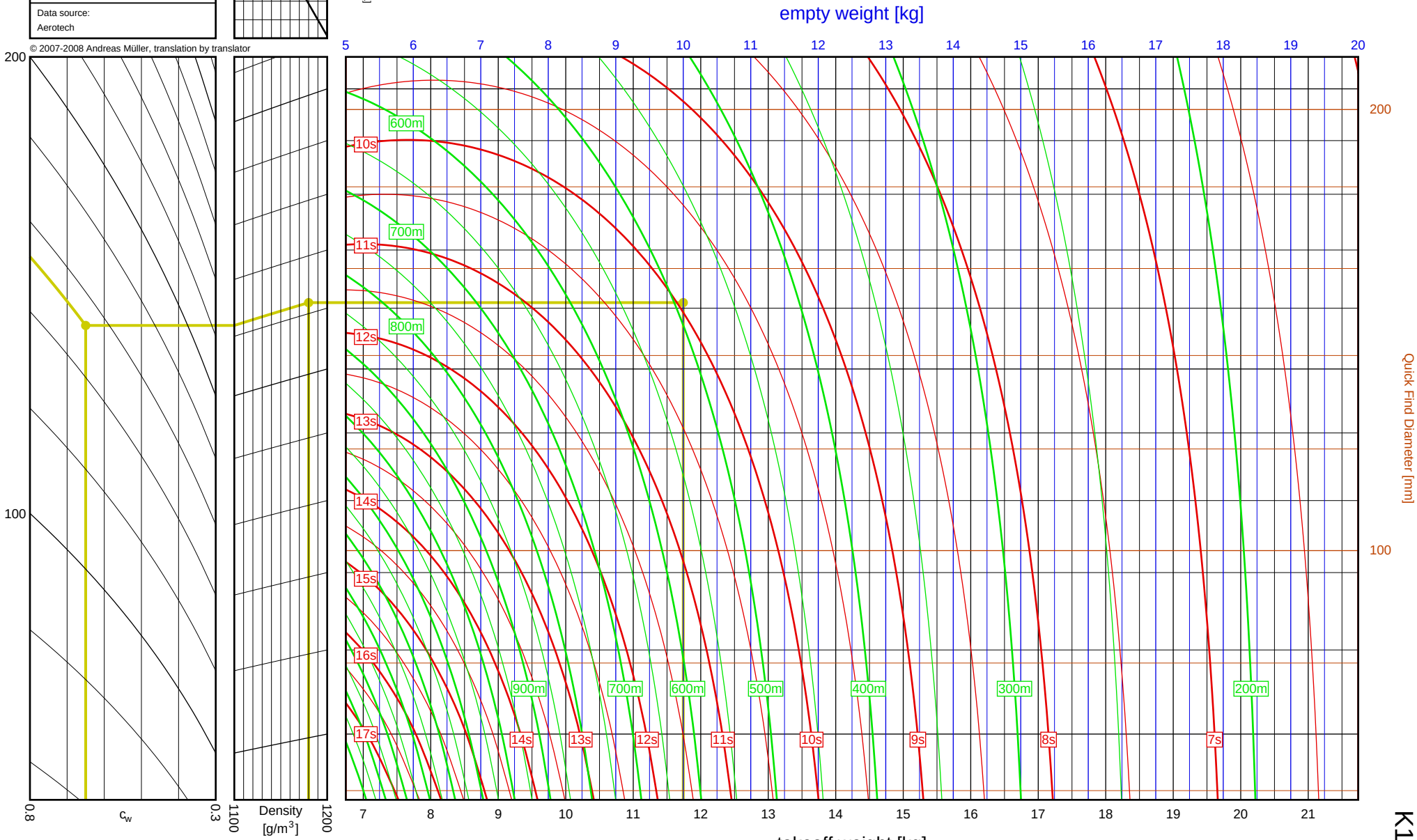
I_{tot}	=	1320.4 Ns
F_{avg}	=	1500.5 N
t_{burn}	=	0.88 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

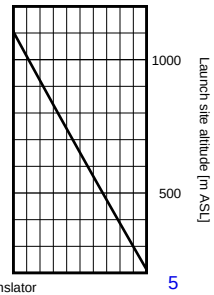
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.741kg
Results: time to apogee: 10.0s, expected altitude: 492m



Aerotech
K513FJ

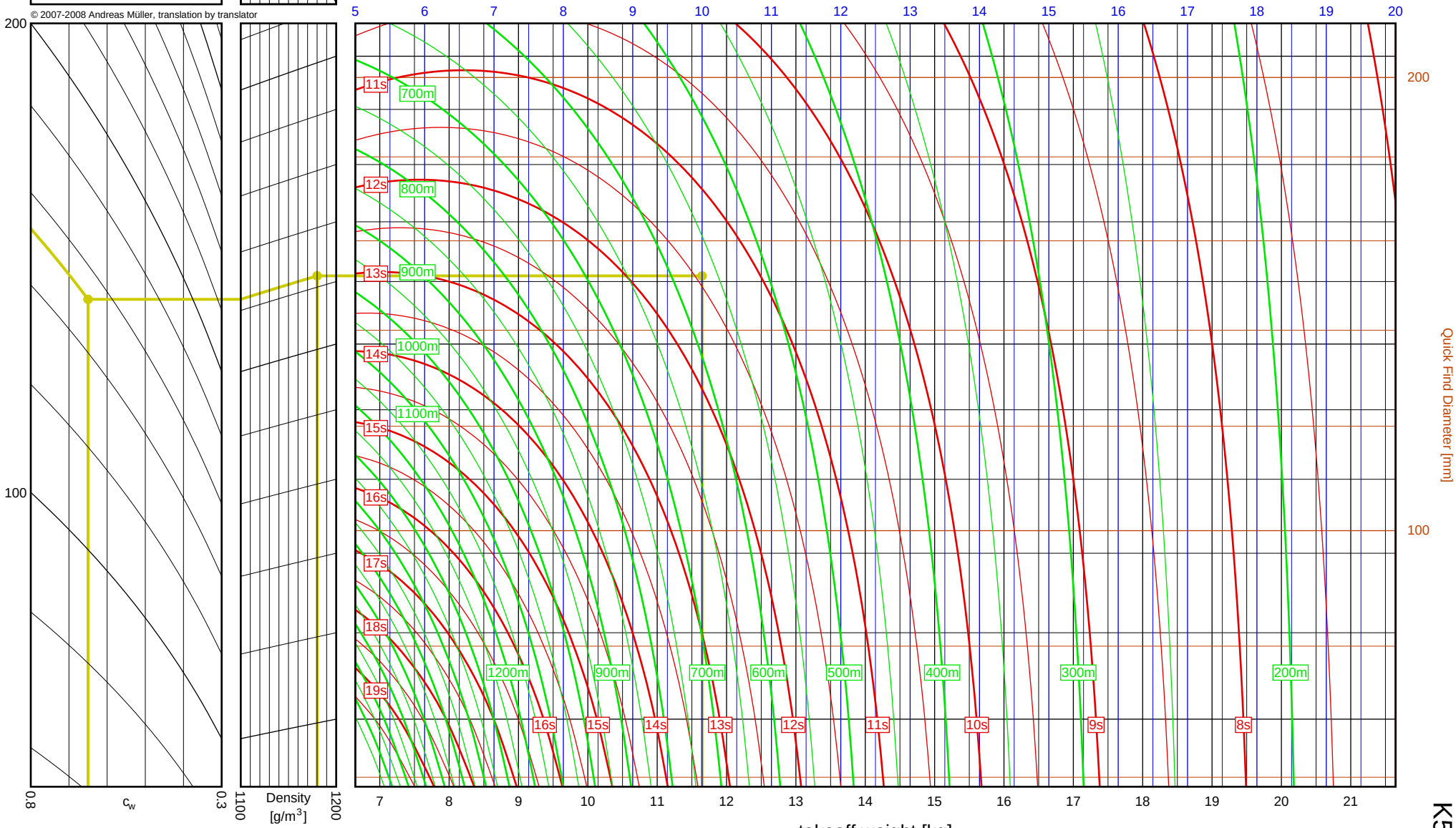
I_{tot}	=	1474.9 Ns
F_{avg}	=	541.0 N
t_{burn}	=	2.73 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

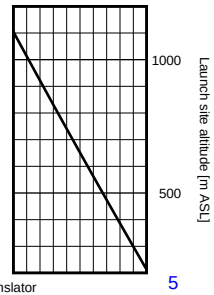
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.647kg
Results: time to apogee: 11.4s, expected altitude: 567m



Aerotech K695R

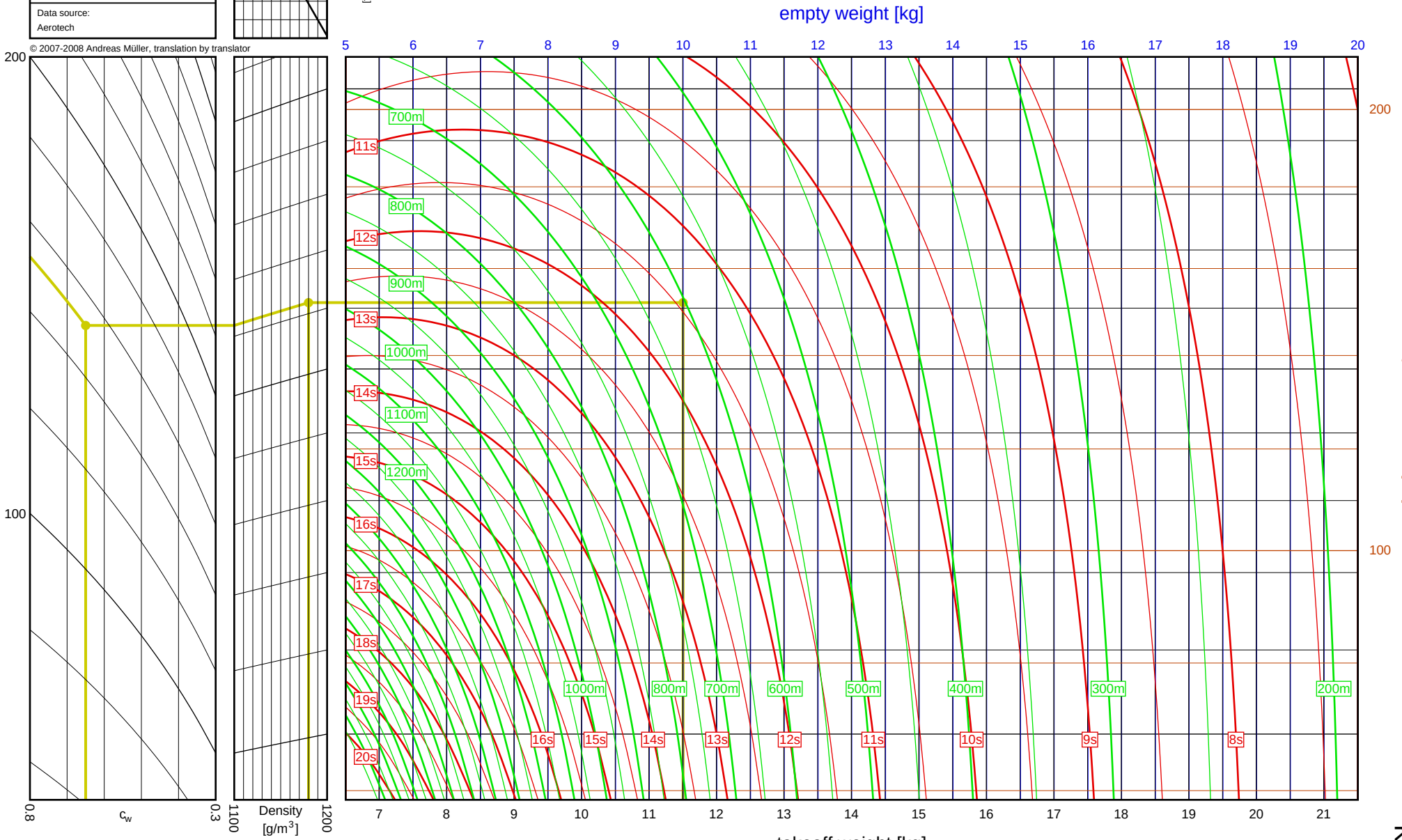
I_{tot}	=	1496.5 Ns
F_{avg}	=	665.1 N
t_{burn}	=	2.25 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

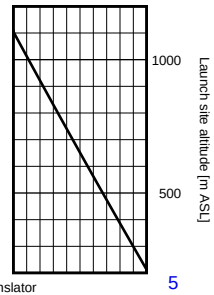
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.506kg
Results: time to apogee: 11.4s, expected altitude: 603m



Aerotech K1100T

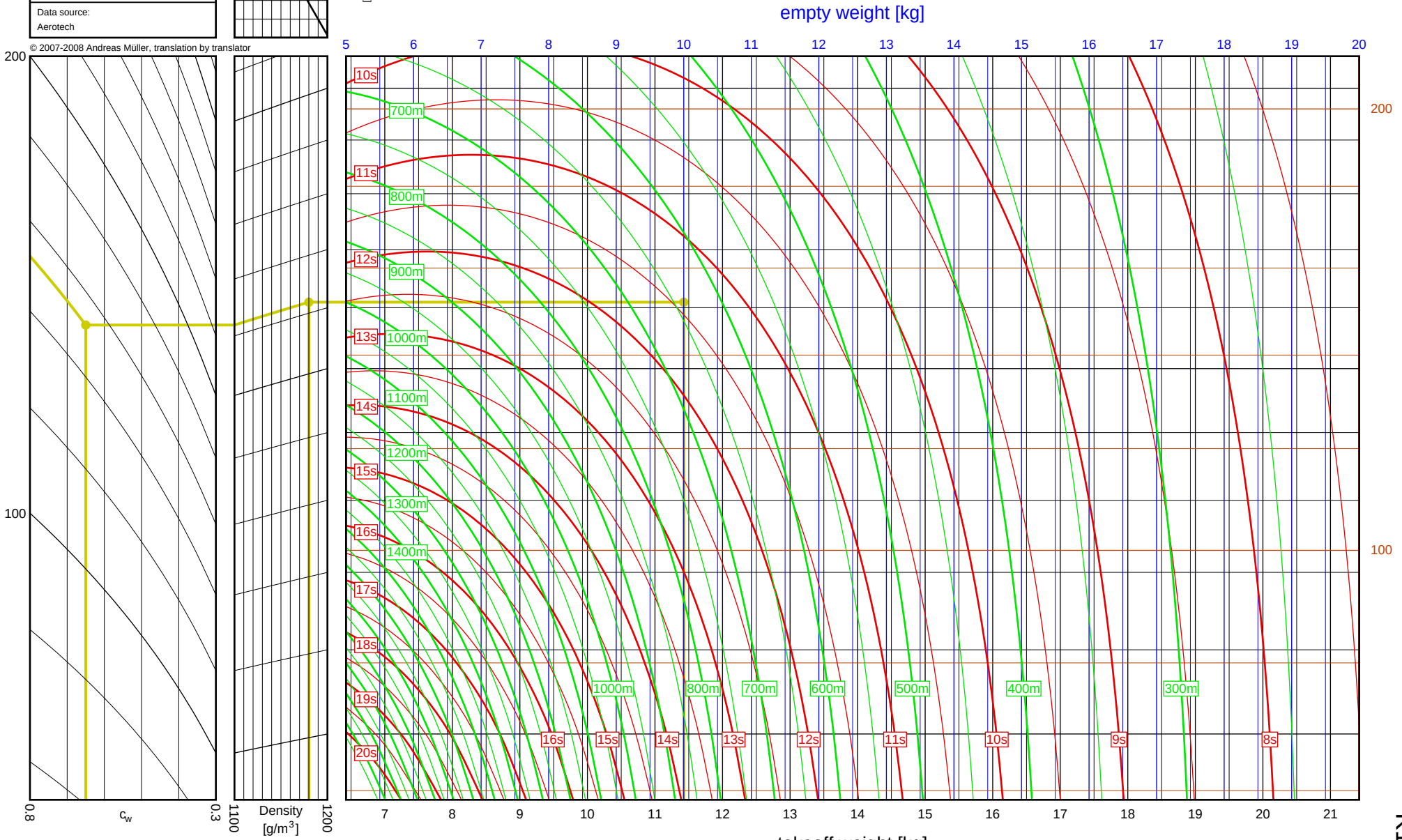
I_{tot}	=	1537.5 Ns
F_{avg}	=	960.9 N
t_{burn}	=	1.60 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.426kg
Results: time to apogee: 11.4s, expected altitude: 640m



K1100T

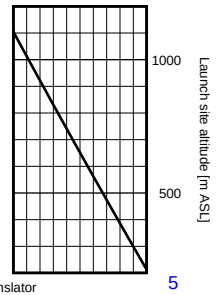
6", K-L

K1100T

Aerotech K550W

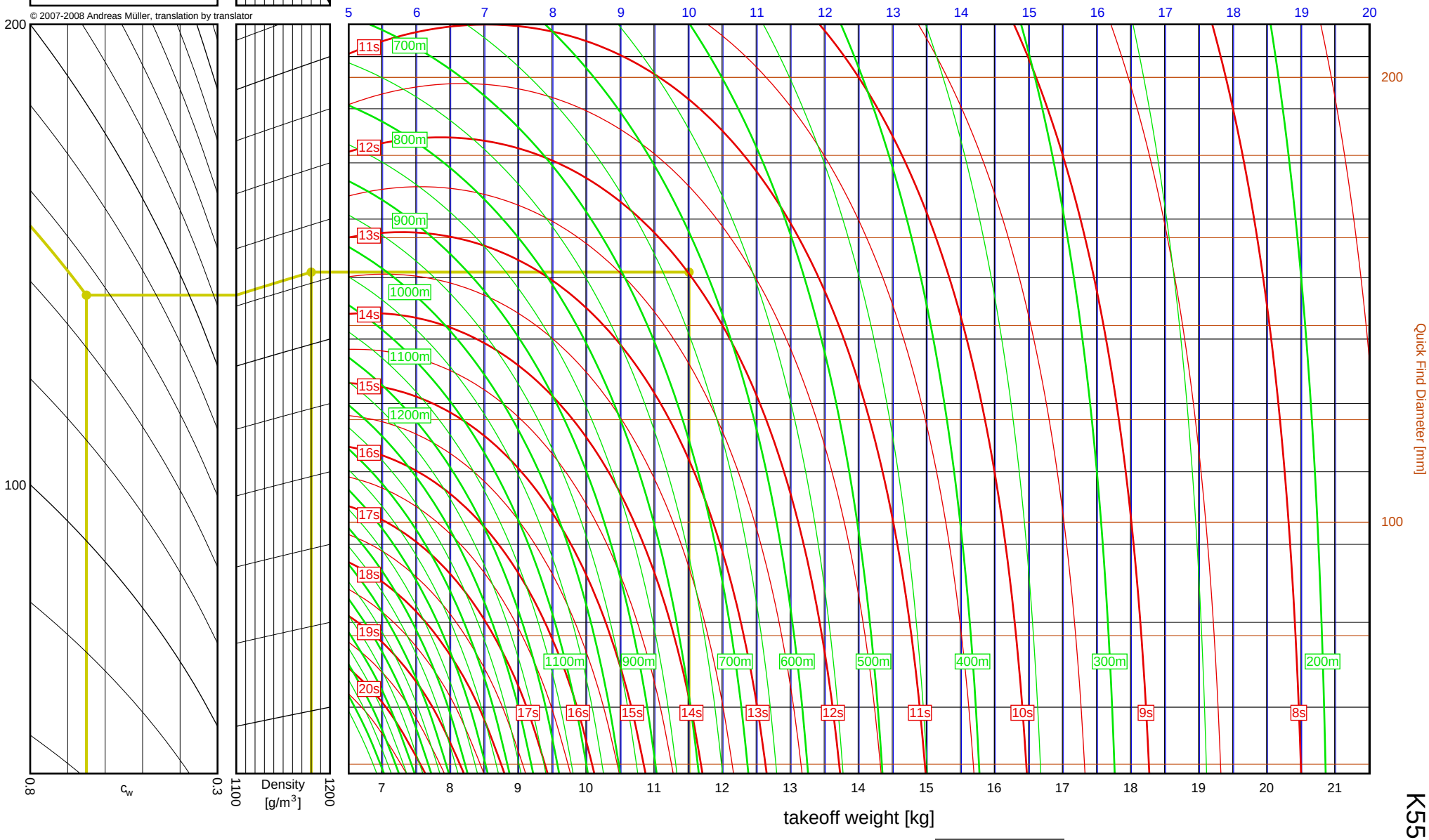
I_{tot}	=	1563.1 Ns
F_{avg}	=	446.6 N
t_{burn}	=	3.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.515kg
Results: time to apogee: 12.0s, expected altitude: 620m

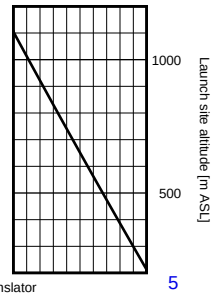


Aerotech

K485HW

I_{tot}	=	1682.2 Ns
F_{avg}	=	431.5 N
t_{burn}	=	3.90 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.220kg
Results: time to apogee: 12.2s, expected altitude: 640m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

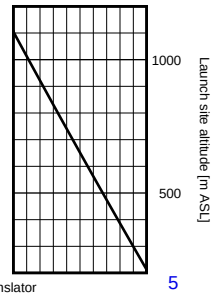
Density [g/m^3]

K485HW

Aerotech K805G

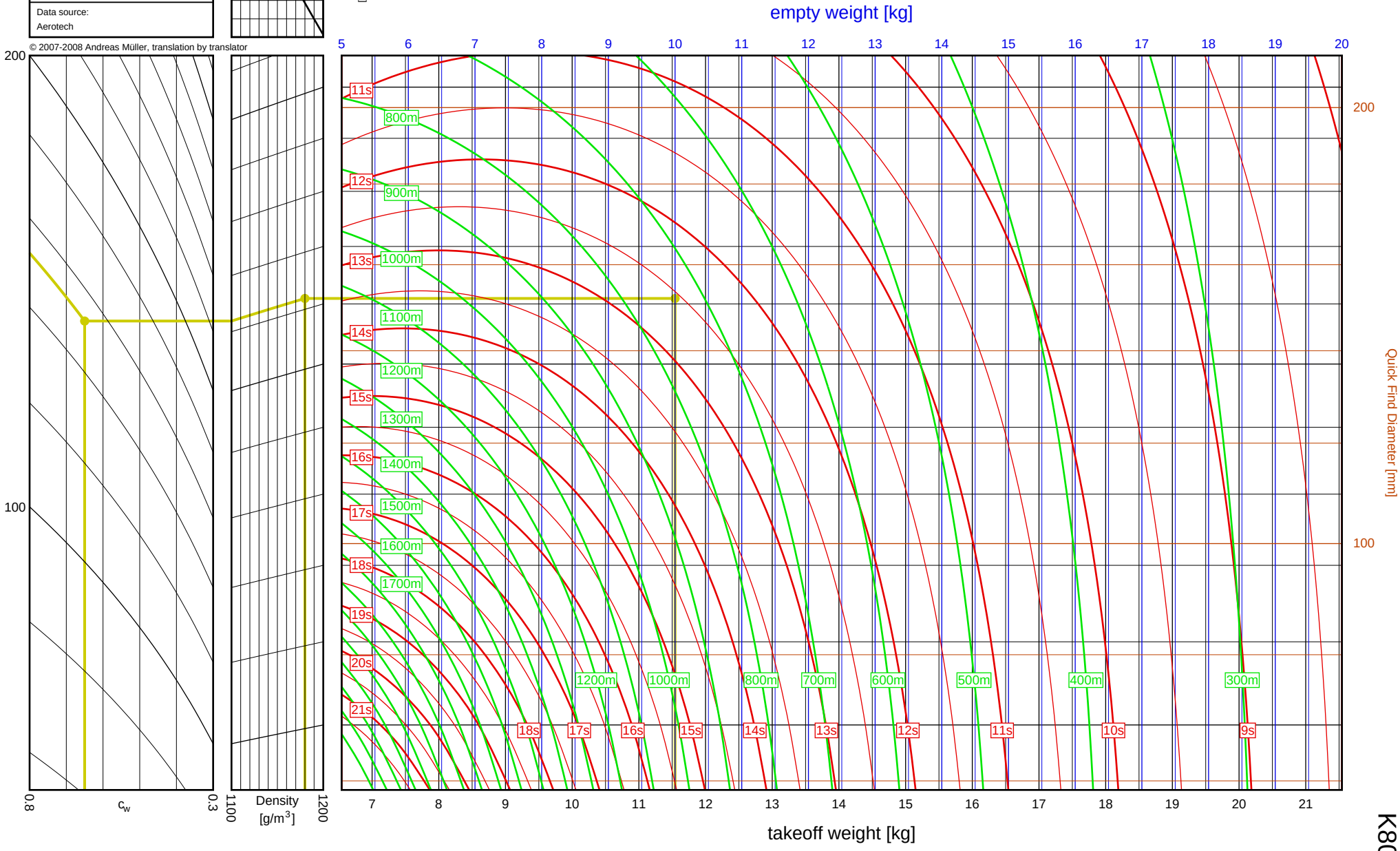
I_{tot}	=	1730.0 Ns
F_{avg}	=	720.8 N
t_{burn}	=	2.40 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

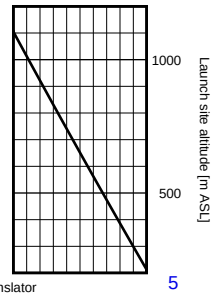
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.543kg
Results: time to apogee: 12.6s, expected altitude: 735m



Aerotech K1275R

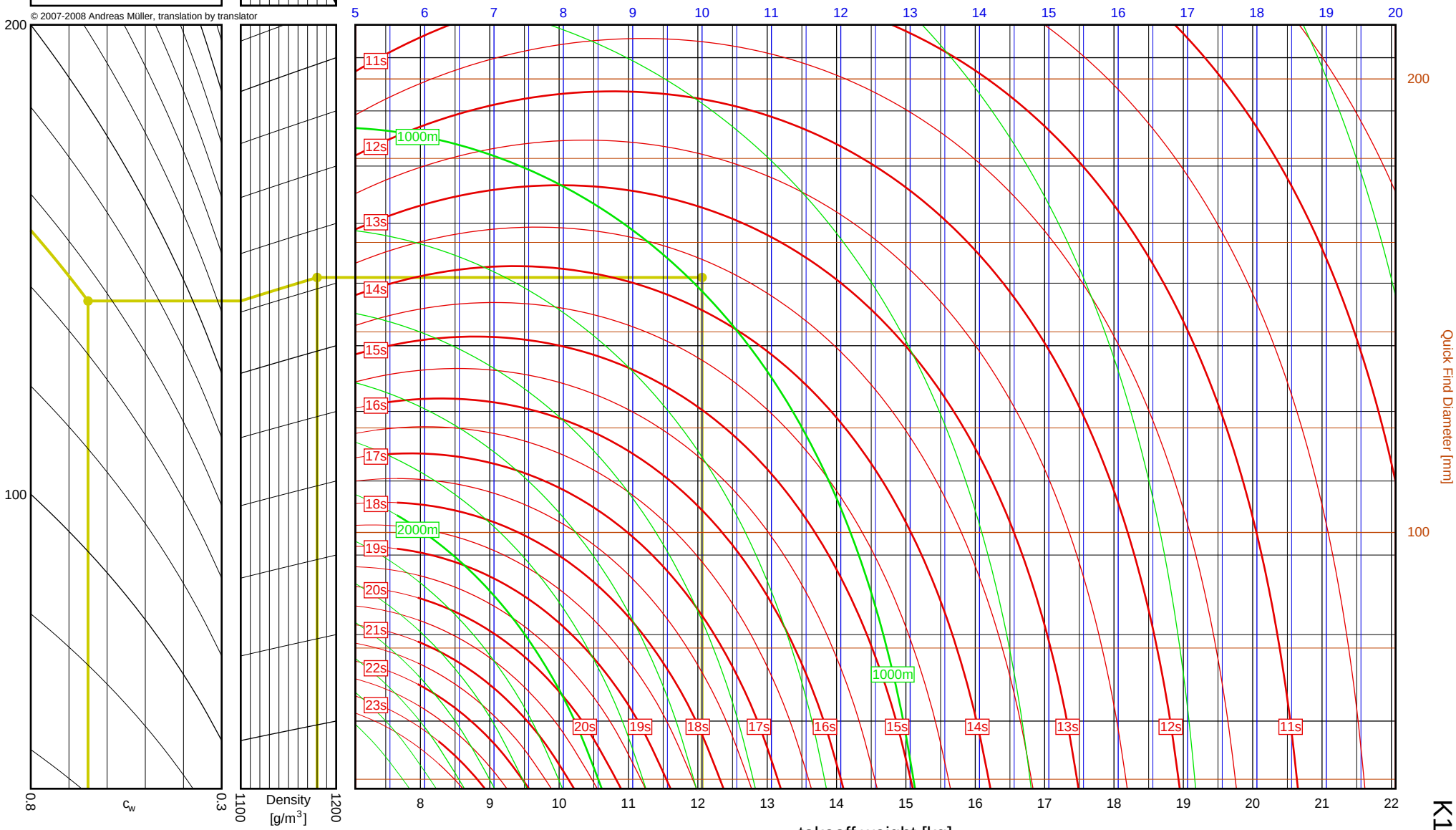
I_{tot}	=	2132.3 Ns
F_{avg}	=	1066.2 N
t_{burn}	=	2.00 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.061kg
Results: time to apogee: 13.7s, expected altitude: 985m



6", K-L

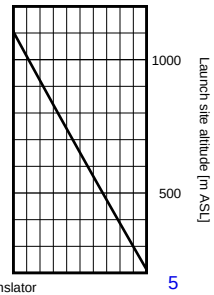
K1275R

K1275R

Aerotech K270W

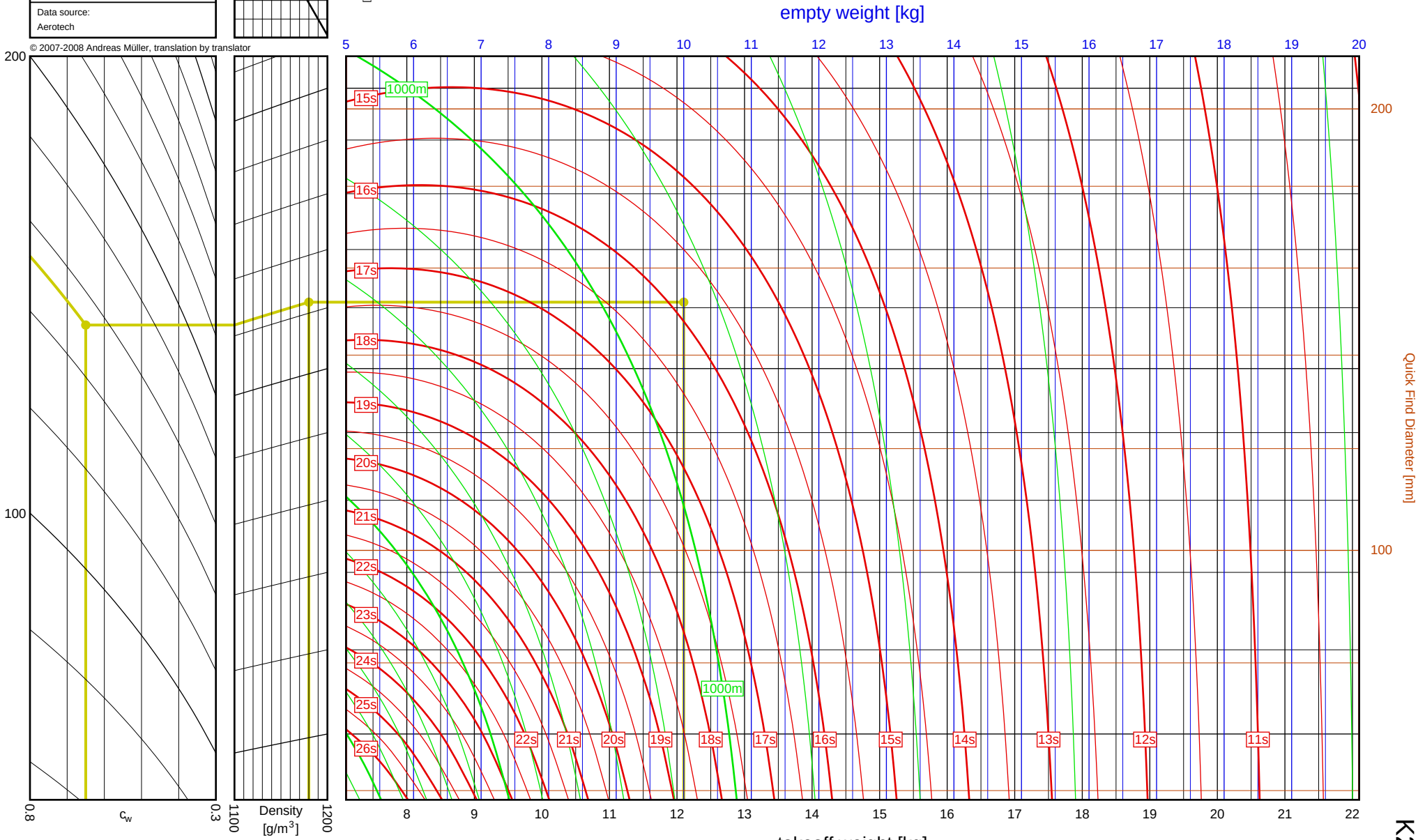
I_{tot}	=	2154.9 Ns
F_{avg}	=	247.9 N
t_{burn}	=	8.69 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.100kg
Results: time to apogee: 15.9s, expected altitude: 855m



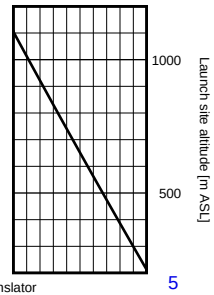
6", K-L

K270W
K270W

Aerotech K828FJ

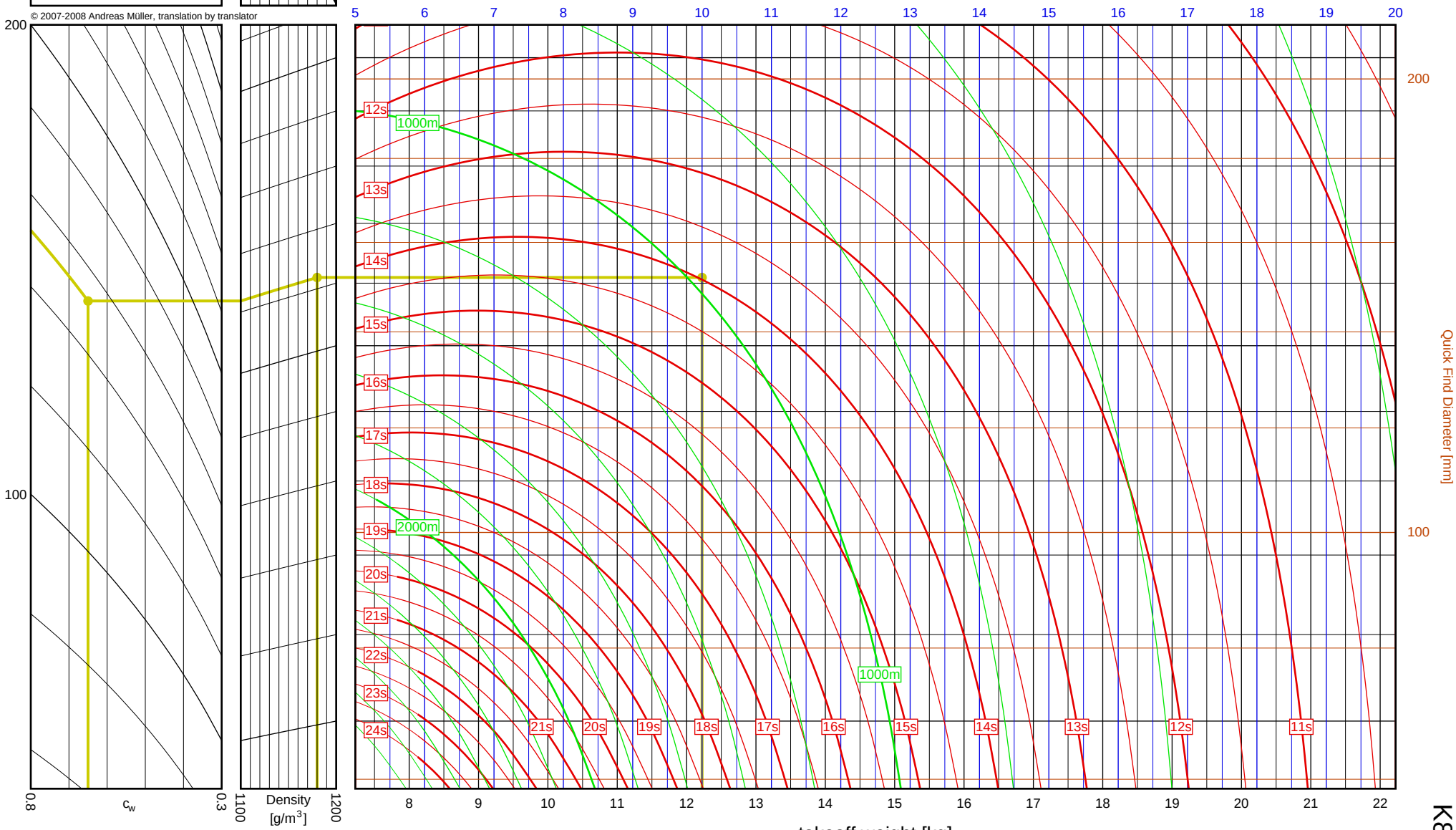
I_{tot}	=	2157.2 Ns
F_{avg}	=	862.9 N
t_{burn}	=	2.50 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.223kg
Results: time to apogee: 14.0s, expected altitude: 983m



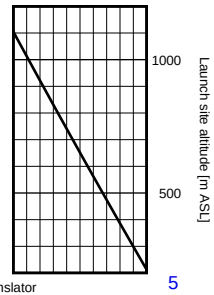
K828FJ

K828FJ

Aerotech K700W

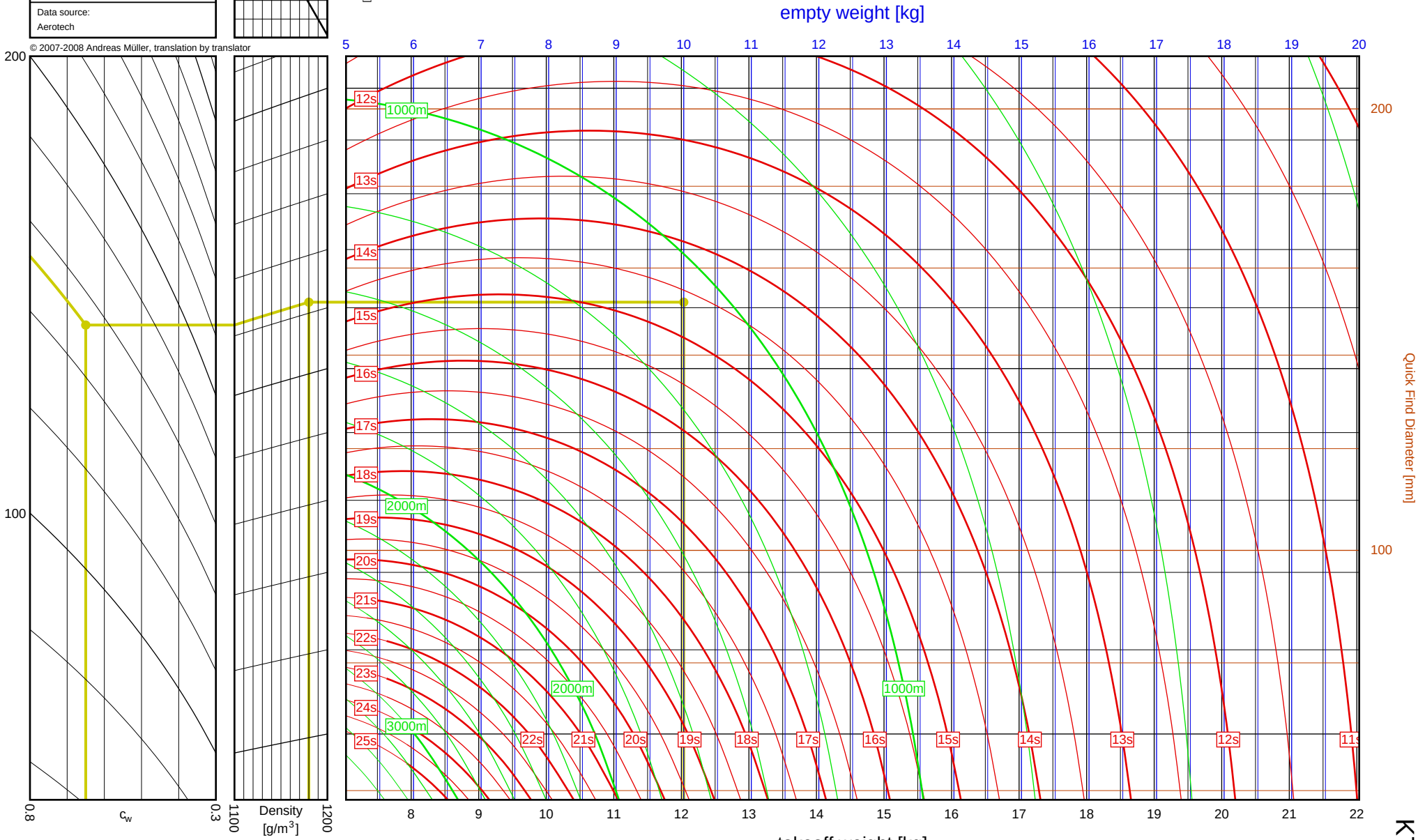
I_{tot}	=	2283.7 Ns
F_{avg}	=	635.6 N
t_{burn}	=	3.59 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.035kg
Results: time to apogee: 14.6s, expected altitude: 1060m

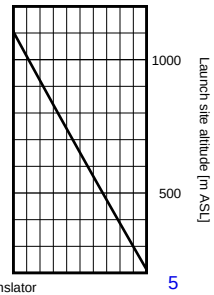


Aerotech

K680R

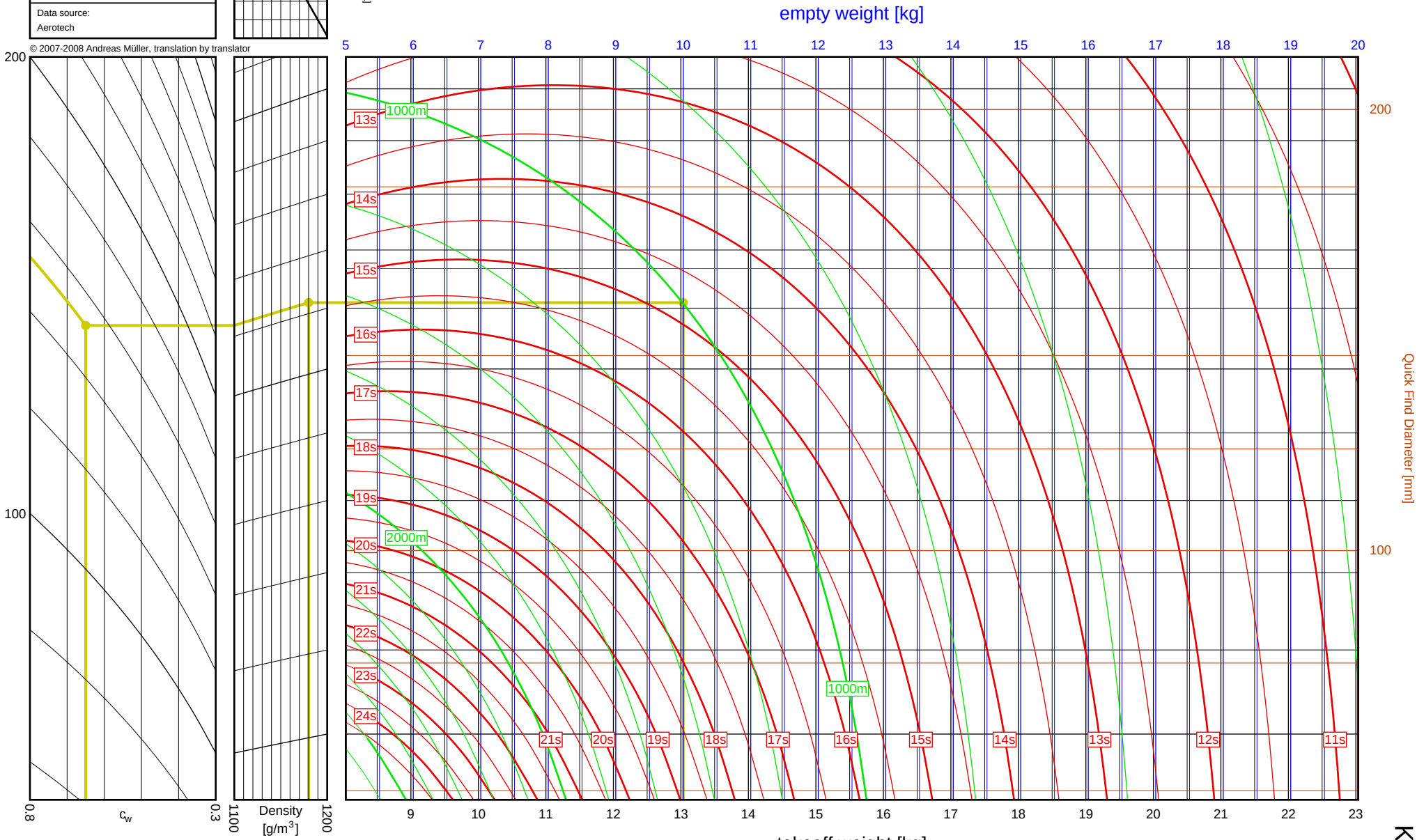
I_{tot}	=	2358.3 Ns
F_{avg}	=	675.7 N
t_{burn}	=	3.49 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.035kg
Results: time to apogee: 14.8s, expected altitude: 999m



8-12

K680R

6", K-L

8

K680R

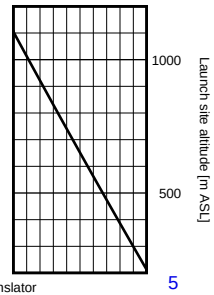
Aerotech K780R

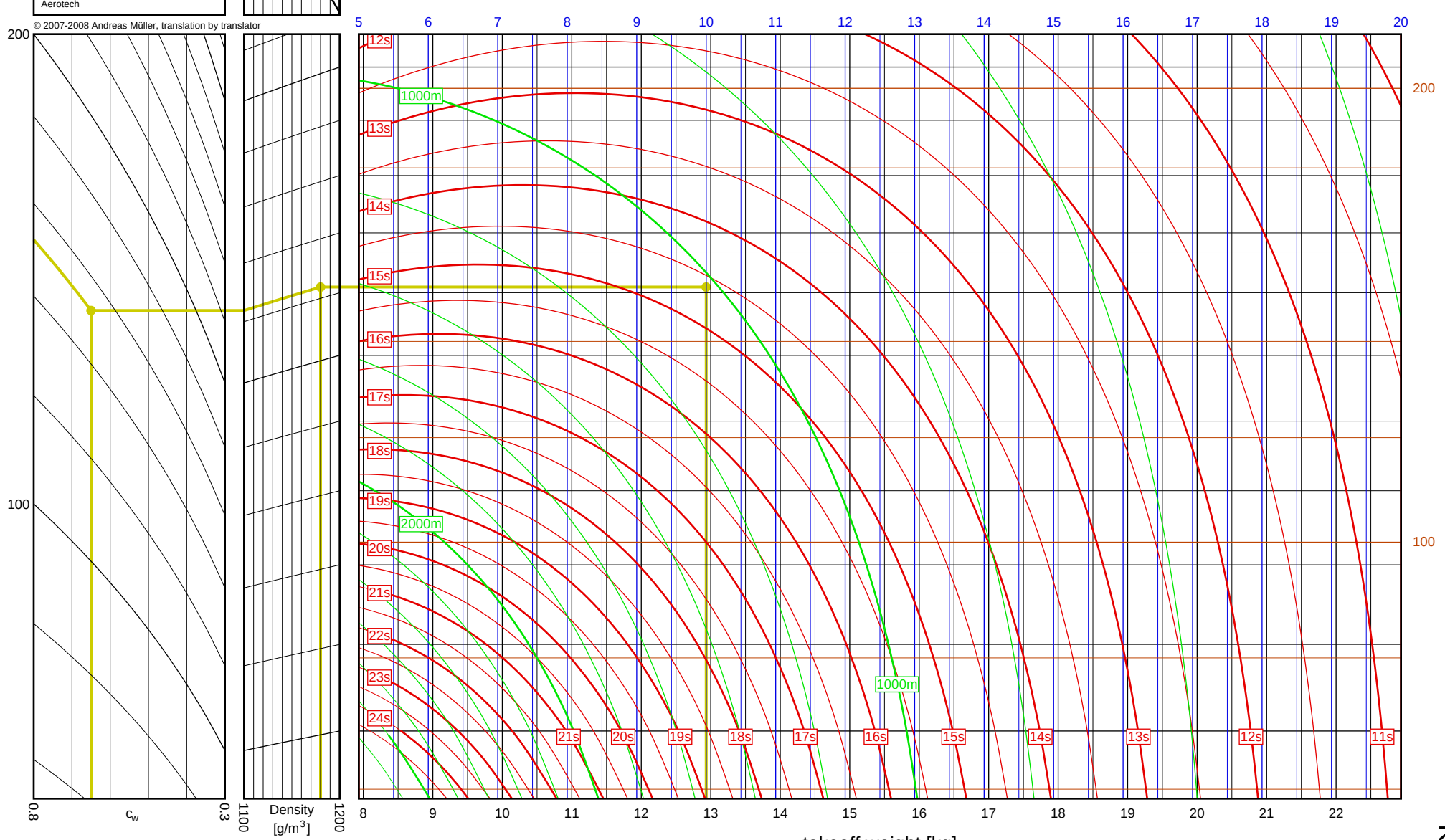
I_{tot}	=	2361.1 Ns
F_{avg}	=	770.8 N
t_{burn}	=	3.06 s
d	=	75 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.934kg
Results: time to apogee: 14.6s, expected altitude: 1016m





8-13

K780R

6", K-L

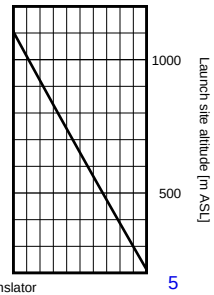
8

K780R

Aerotech K650T

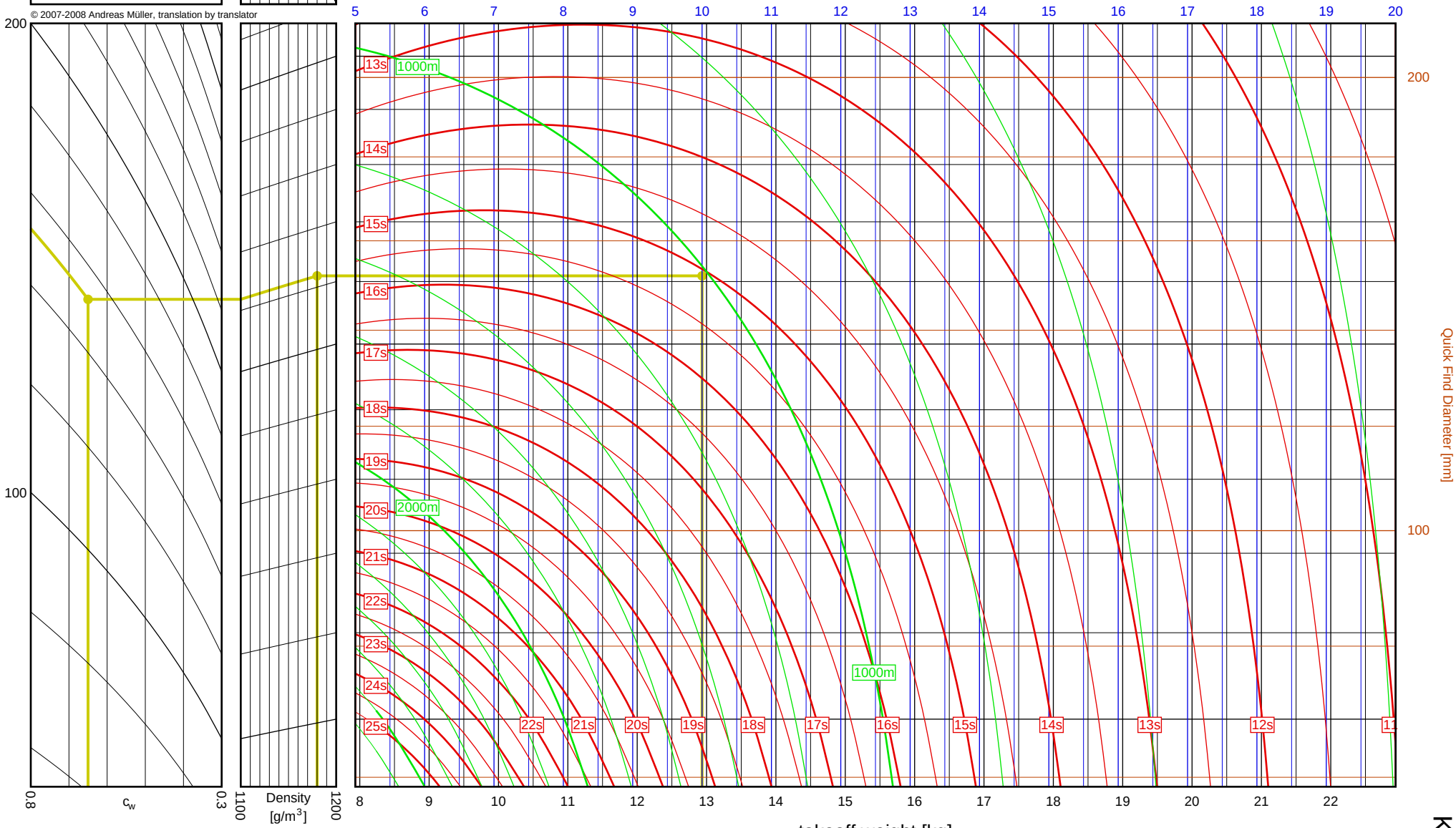
I_{tot}	=	2387.8 Ns
F_{avg}	=	581.3 N
t_{burn}	=	4.11 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

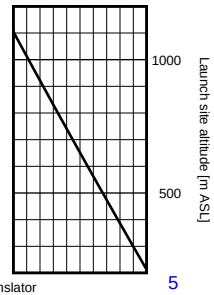
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.935kg
Results: time to apogee: 15.1s, expected altitude: 1011m



Aerotech K560W

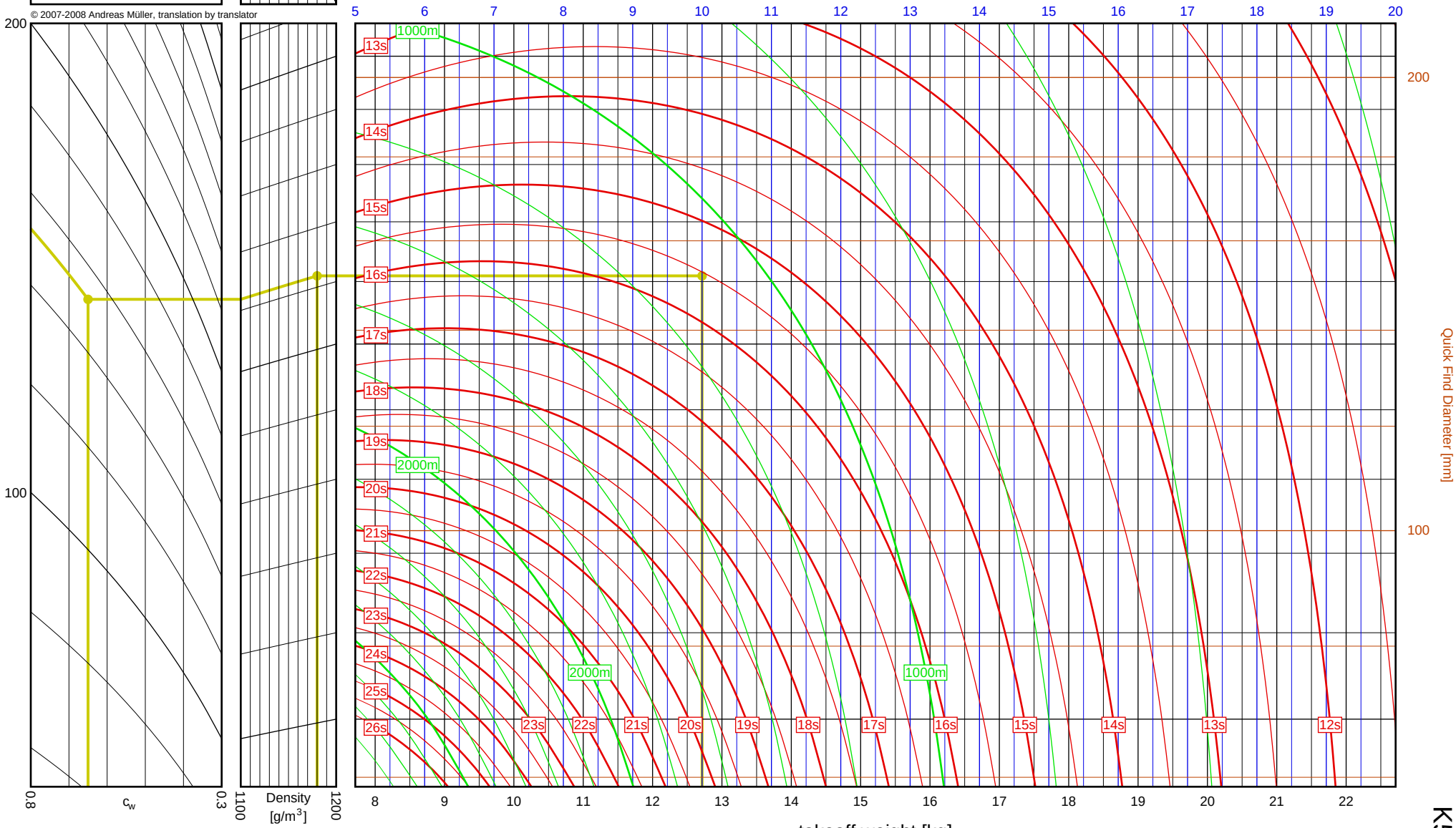
I_{tot}	=	2467.2 Ns
F_{avg}	=	496.9 N
t_{burn}	=	4.96 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

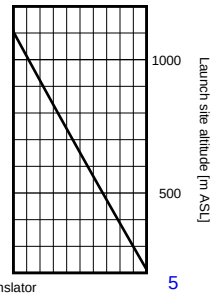
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.714kg
Results: time to apogee: 15.5s, expected altitude: 1090m



Aerotech K1050W

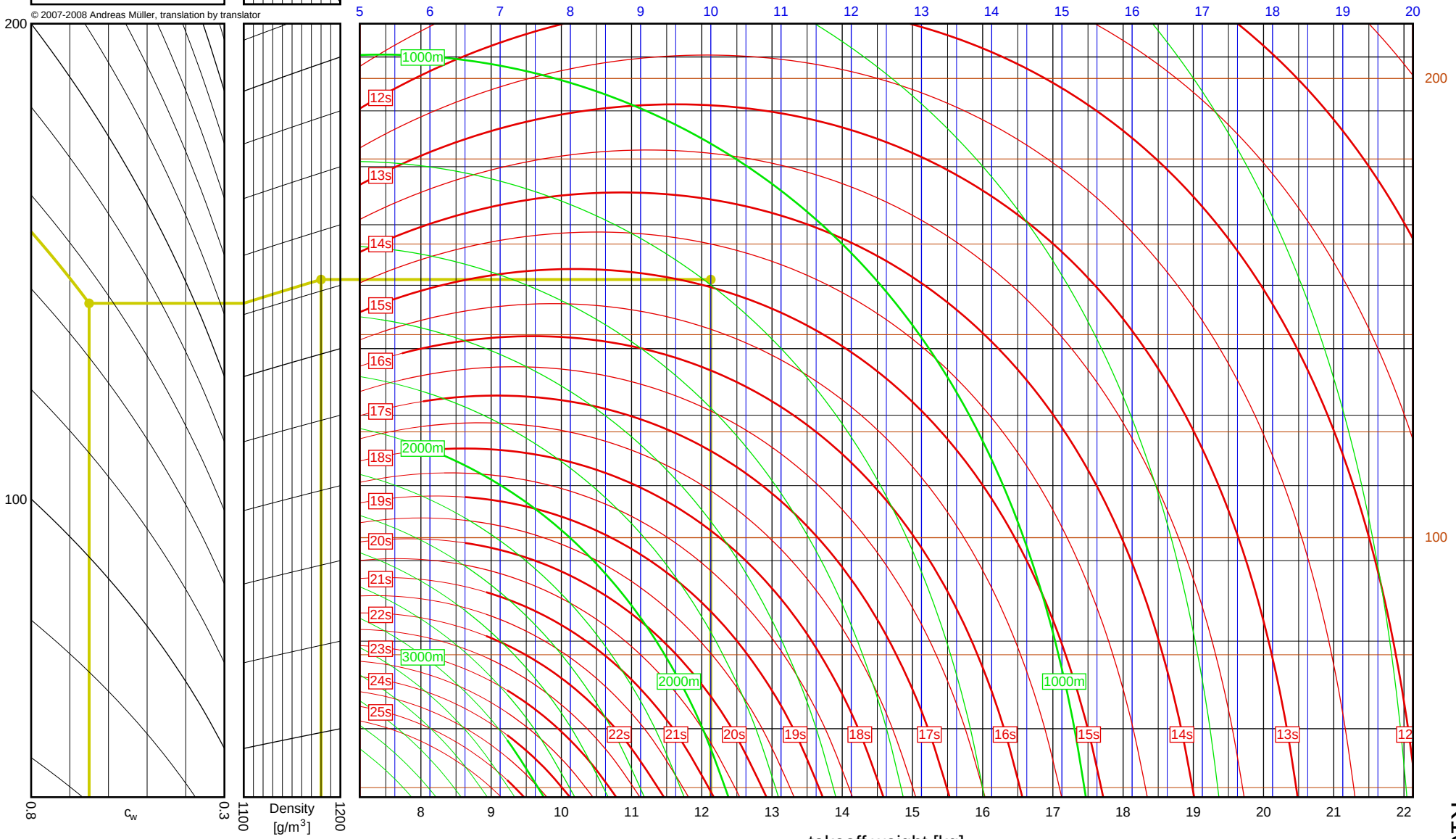
I_{tot}	=	2507.9 Ns
F_{avg}	=	983.9 N
t_{burn}	=	2.55 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.128kg
Results: time to apogee: 14.9s, expected altitude: 1192m



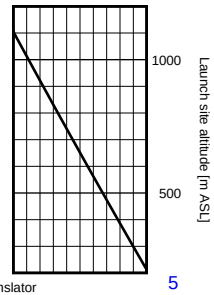
K1050W

K1050W

Aerotech K458W

I_{tot}	=	2518.2 Ns
F_{avg}	=	393.5 N
t_{burn}	=	6.40 s
d	=	98 mm

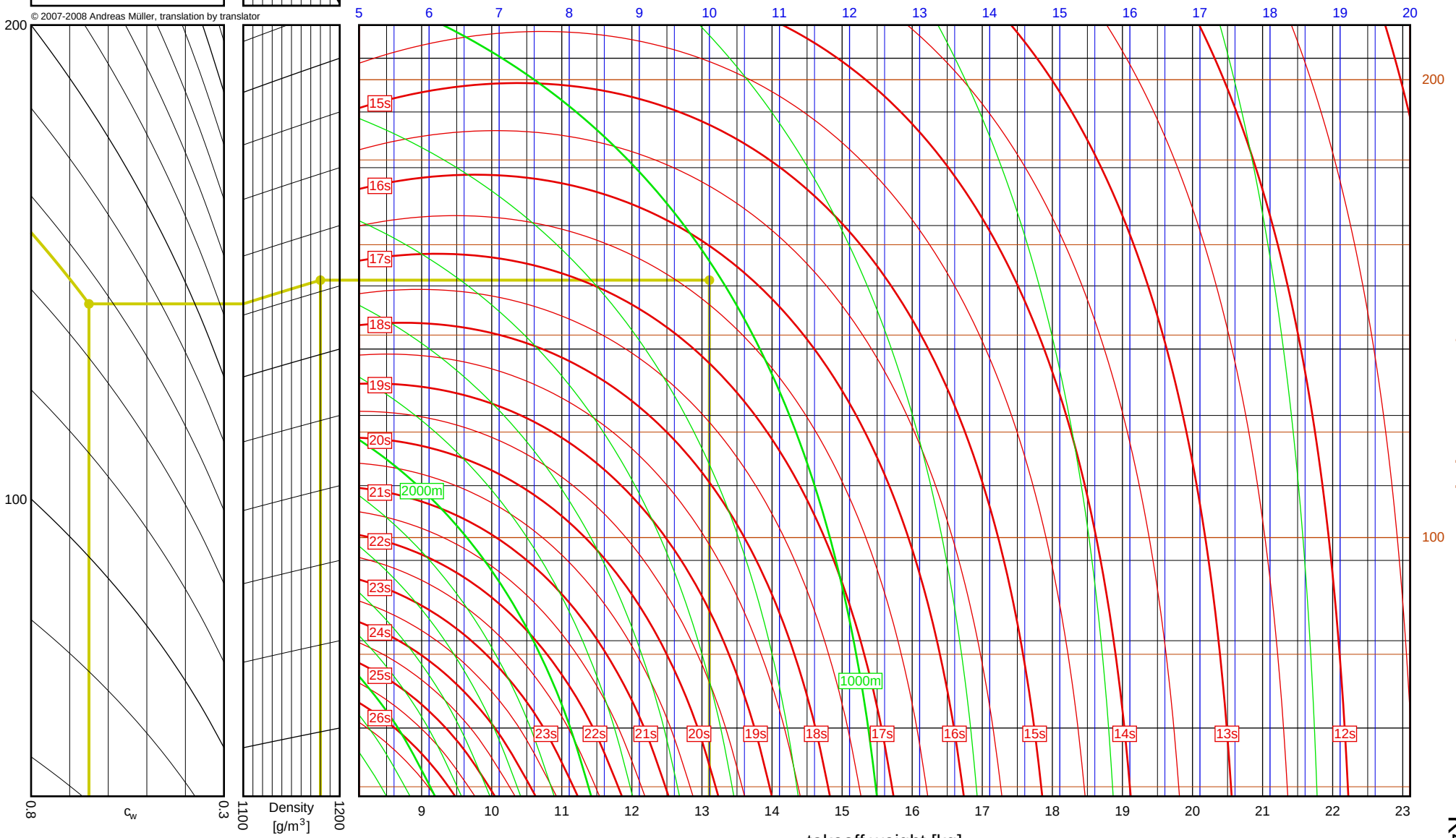
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.106kg

Results: time to apogee: 16.3s, expected altitude: 1019m



K458W

K458W

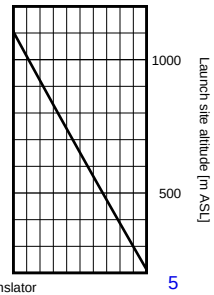
Aerotech K1999N

I_{tot}	=	2520.4 Ns
F_{avg}	=	1800.3 N
t_{burn}	=	1.40 s
d	=	98 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.989kg
Results: time to apogee: 14.3s, expected altitude: 1126m



empty weight [kg]

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

200
100

Diameter [mm]

Quick Find Diameter [mm]

200
100

1000m
2000m
3000m
12s
13s
14s
15s
16s
17s
18s
19s
20s
21s
22s
23s
24s

0.8 c_w 0.3

1100 Density [g/m^3] 1200

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

takeoff weight [kg]

8-18

K1999N

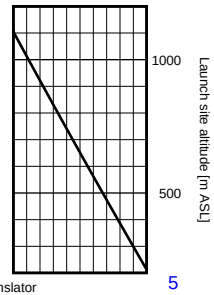
K1999N

6", K-L

Aerotech K250W

I_{tot}	=	2553.0 Ns
F_{avg}	=	249.9 N
t_{burn}	=	10.22 s
d	=	54 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.211kg
Results: time to apogee: 17.8s, expected altitude: 1112m

empty weight [kg]

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

200
100

Diameter [mm]

Quick Find Diameter [mm]

16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 26s 27s 28s 29s

2000m 1000m

25s 24s 23s 22s 21s 20s 19s 18s 17s 16s 15s 14s 13s

0.8 c_w 0.3

1100 Density [g/m^3] 1200

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

takeoff weight [kg]

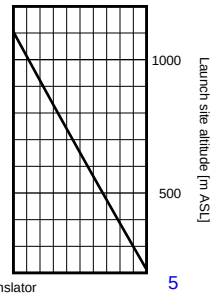
K250W

6", K-L

Aerotech L339N

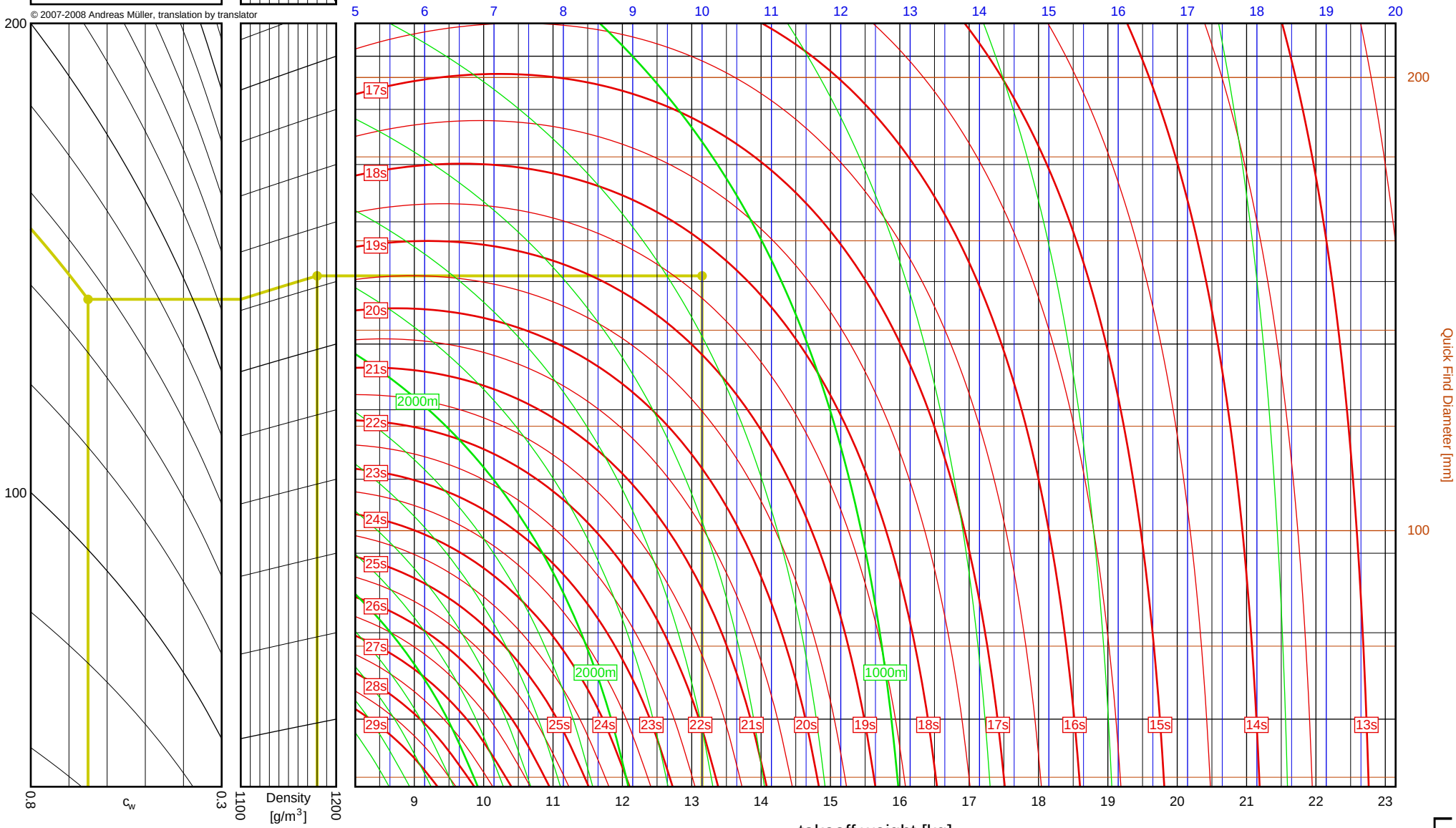
I_{tot}	=	2800.5 Ns
F_{avg}	=	332.4 N
t_{burn}	=	8.43 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.149kg
Results: time to apogee: 18.3s, expected altitude: 1136m

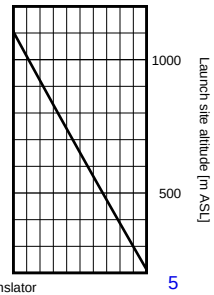


Aerotech

L1170FJ

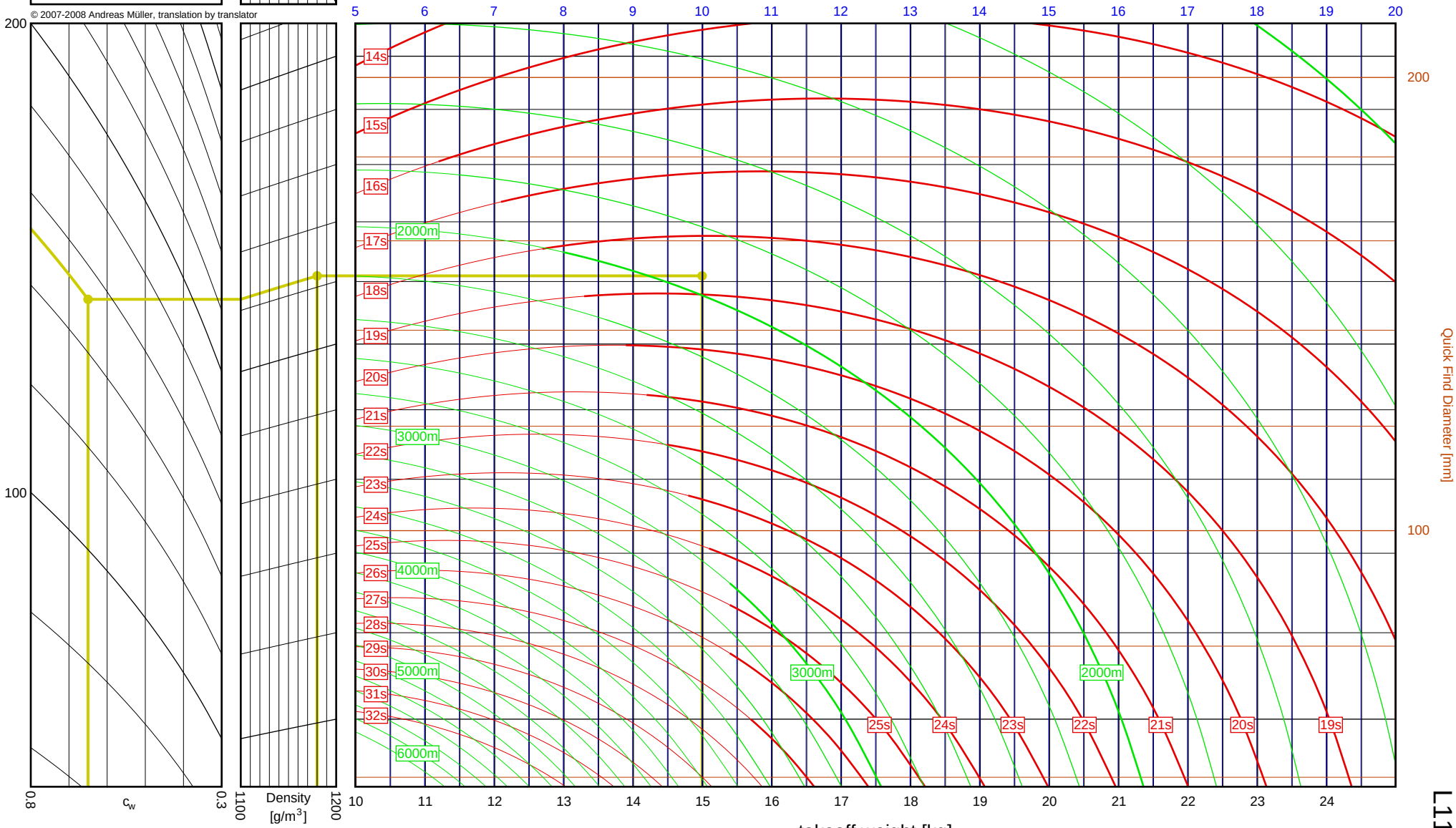
I_{tot}	=	4222.6 Ns
F_{avg}	=	1136.9 N
t_{burn}	=	3.71 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

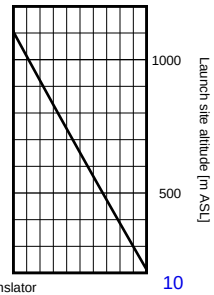
Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 14.990kg
Results: time to apogee: 18.7s, expected altitude: 1942m



Aerotech L1150R

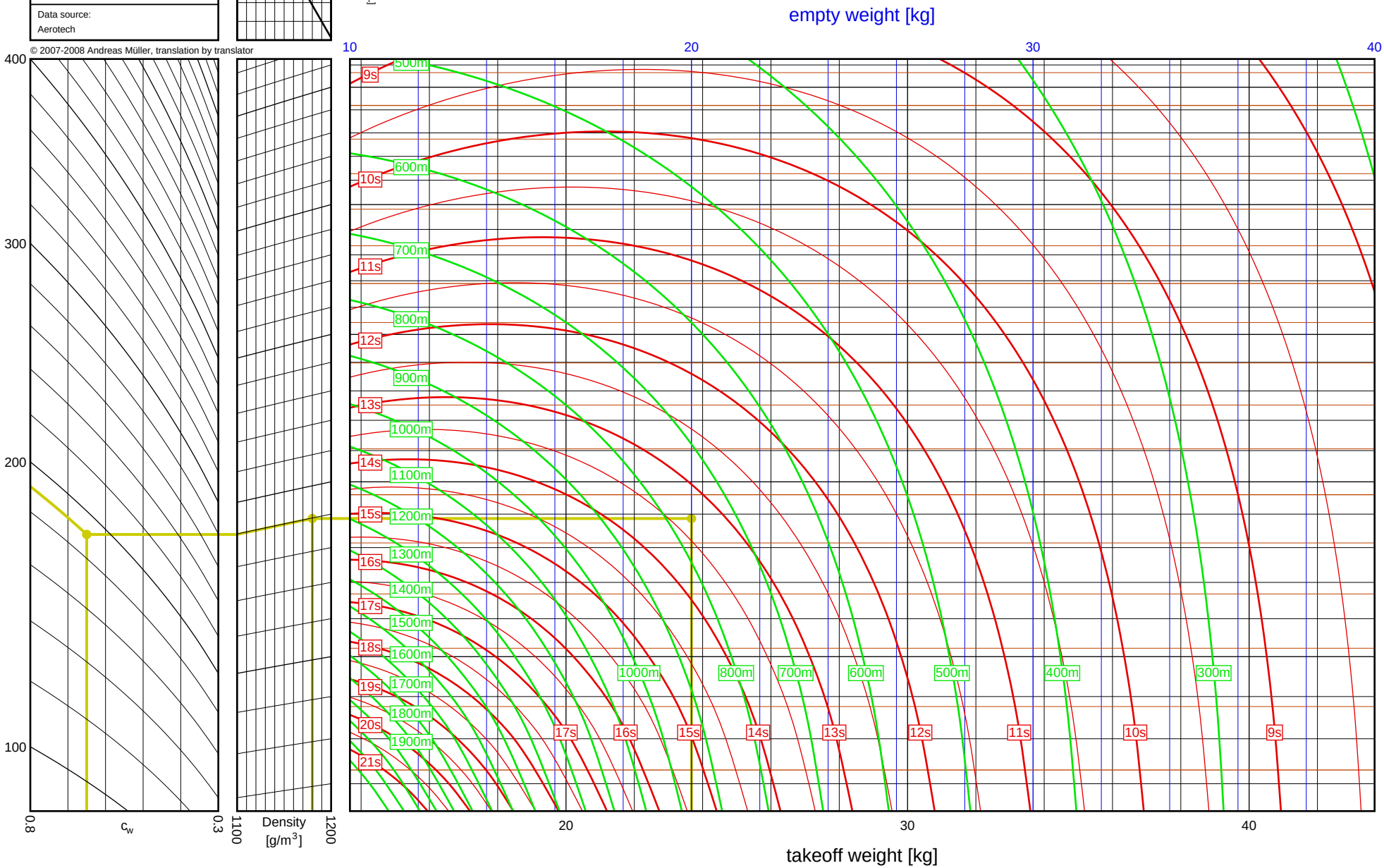
I_{tot}	=	3488.6 Ns
F_{avg}	=	1102.2 N
t_{burn}	=	3.17 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.674kg
Results: time to apogee: 13.3s, expected altitude: 763m



L1150R

7.5"

L1150R

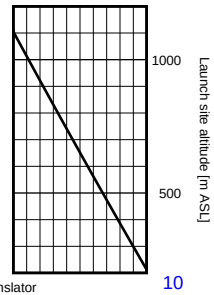
Aerotech L850W

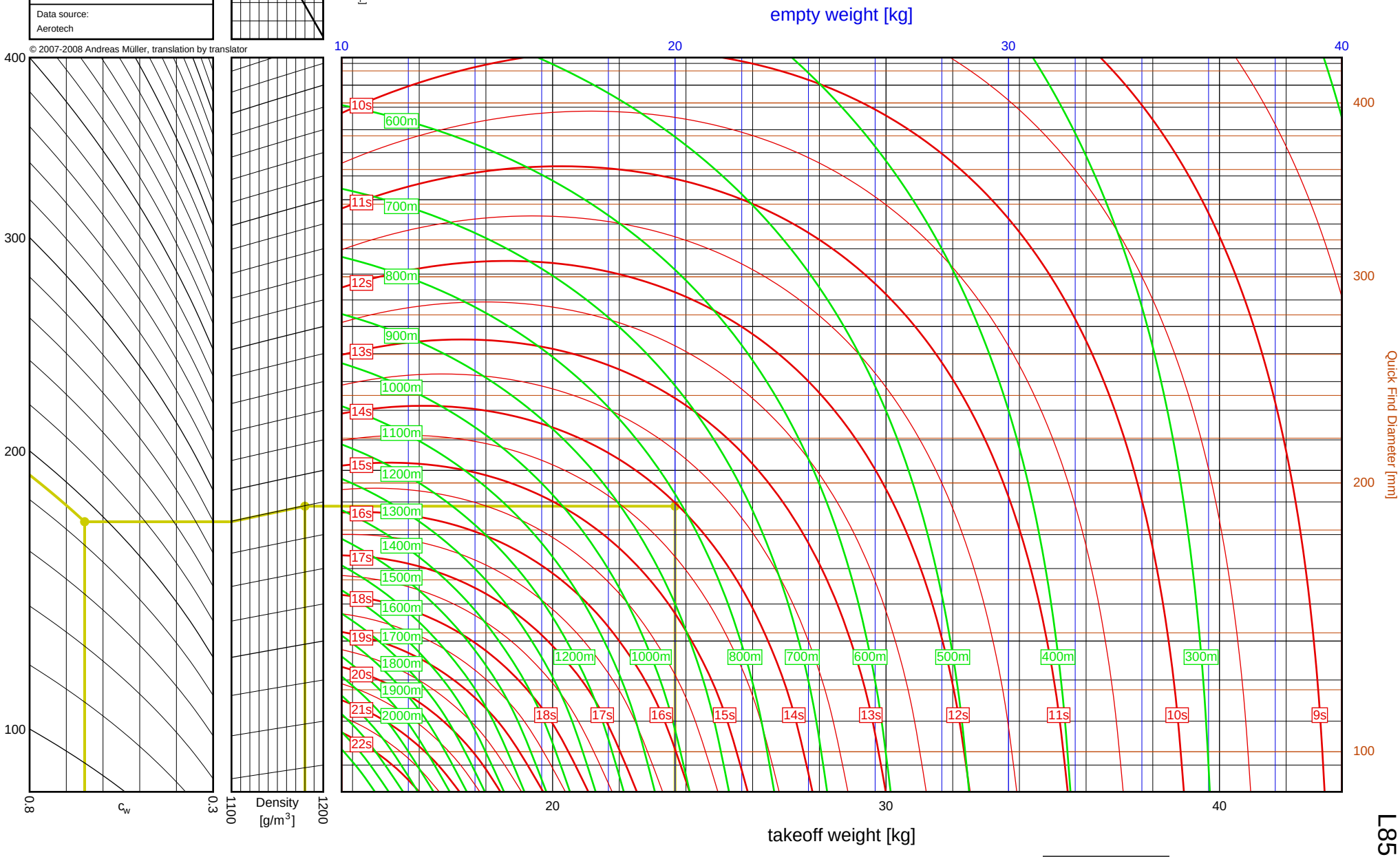
I_{tot}	=	3695.0 Ns
F_{avg}	=	786.7 N
t_{burn}	=	4.70 s
d	=	75 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.673kg
Results: time to apogee: 14.0s, expected altitude: 812m





L850W

7.5"

L850W

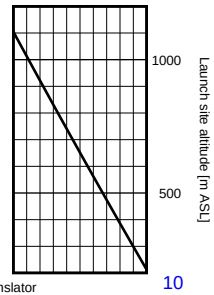
Aerotech L1390G

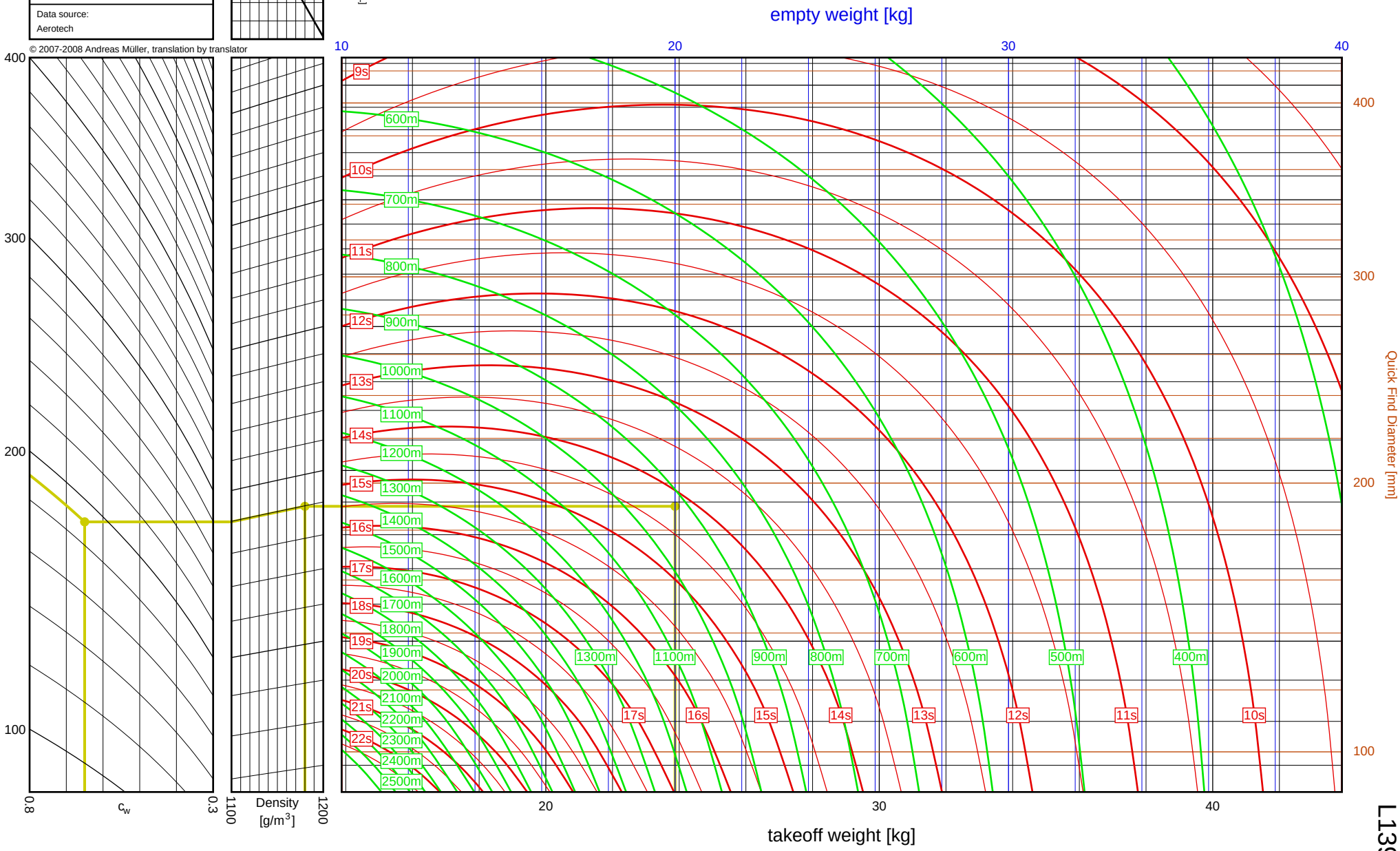
I_{tot}	=	3946.5 Ns
F_{avg}	=	1355.7 N
t_{burn}	=	2.91 s
d	=	75 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.876kg
Results: time to apogee: 14.2s, expected altitude: 921m





L1390G

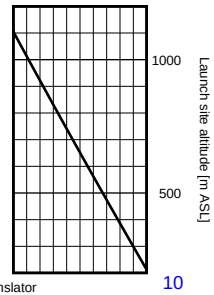
7.5"

L1390G

Aerotech L1300R

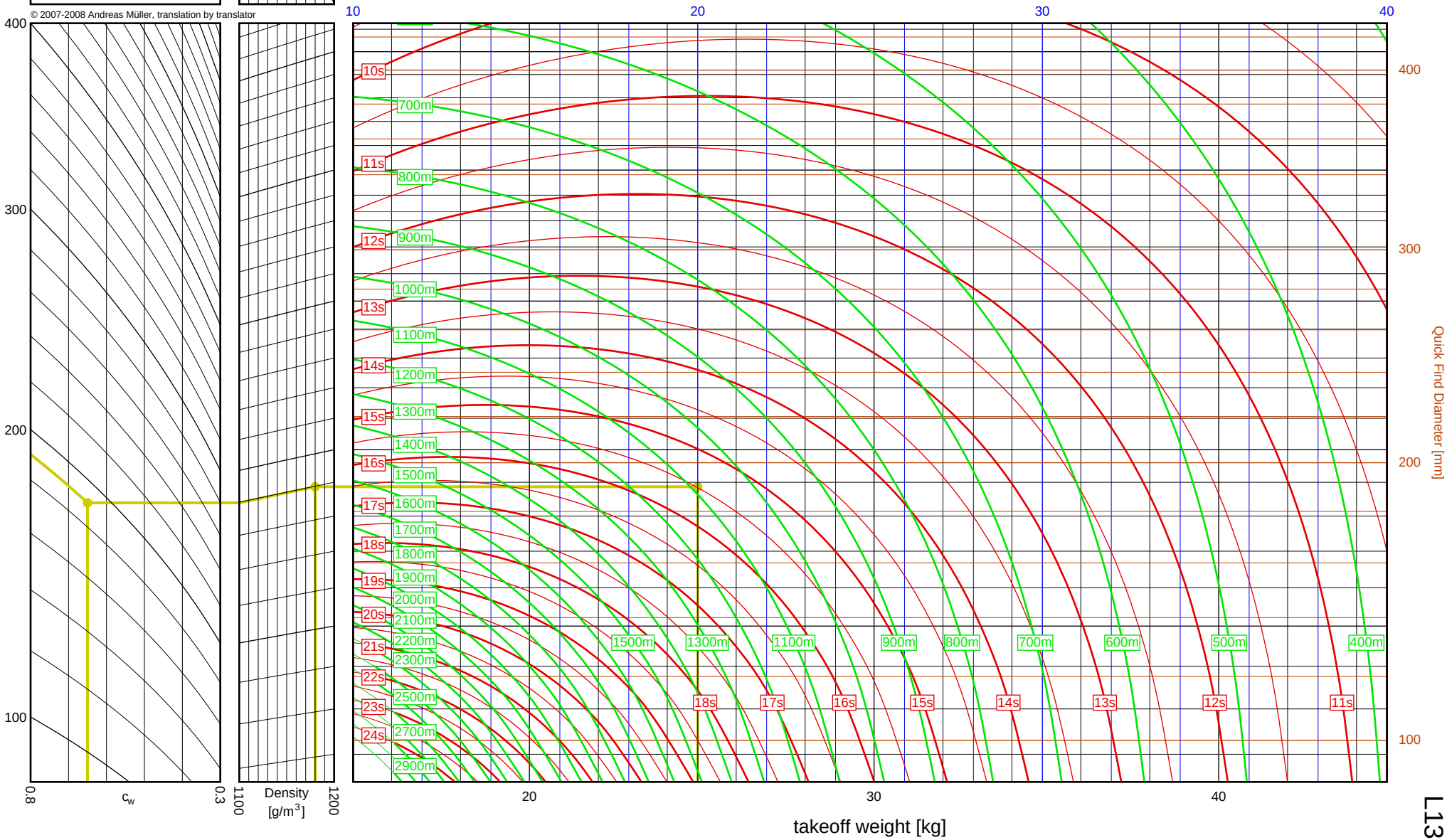
I_{tot}	=	4556.4 Ns
F_{avg}	=	1301.8 N
t_{burn}	=	3.50 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.884kg
Results: time to apogee: 15.5s, expected altitude: 1089m



L1300R

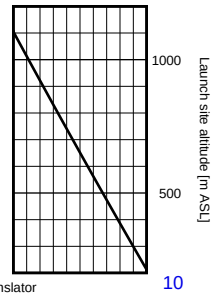
7.5"

L1300R

Aerotech L1420R

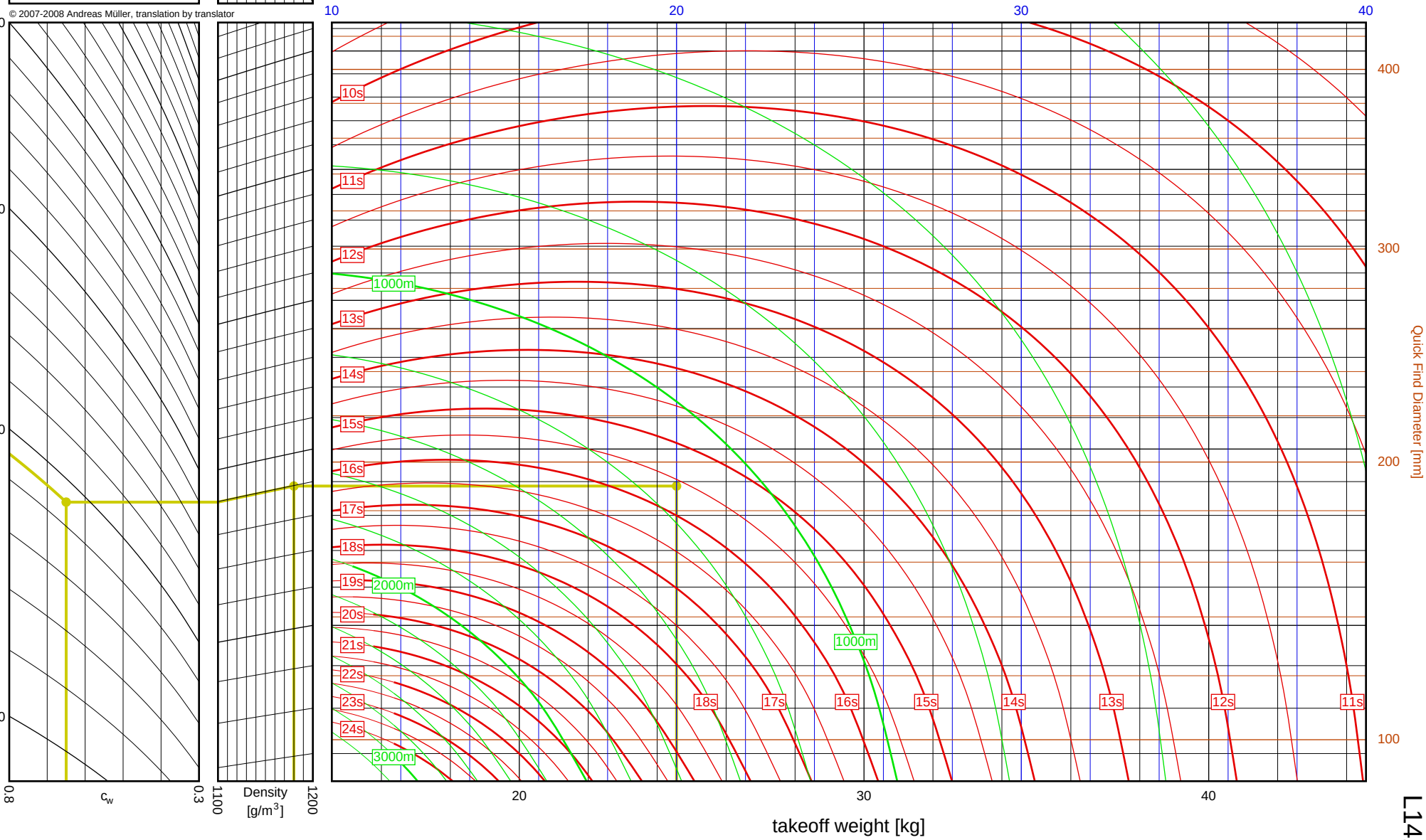
I_{tot}	=	4616.3 Ns
F_{avg}	=	1424.8 N
t_{burn}	=	3.24 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.562kg
Results: time to apogee: 15.6s, expected altitude: 1137m



L1420R

7.5"

L1420R

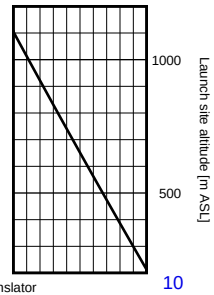
Aerotech L1120W

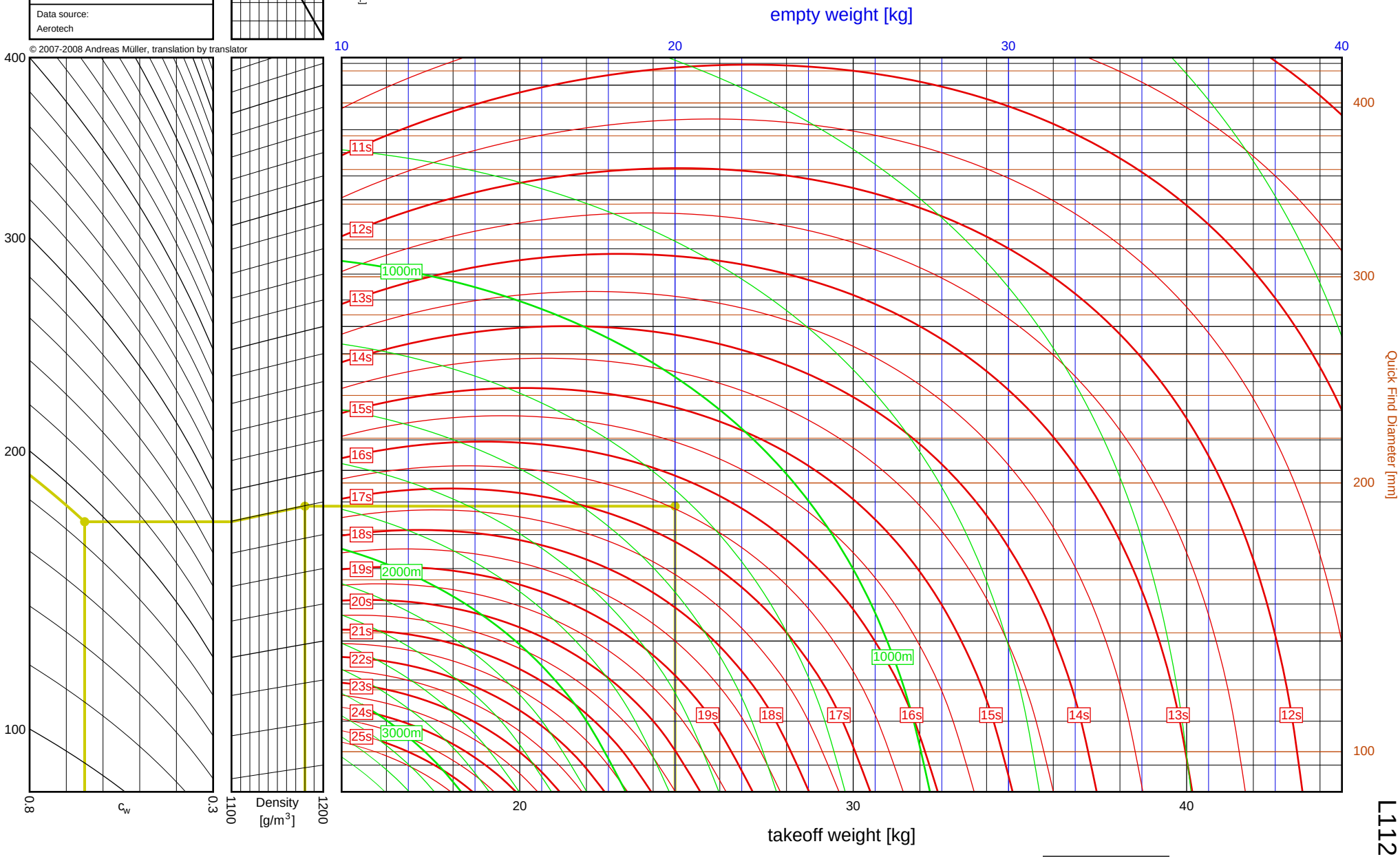
I_{tot}	=	4922.2 Ns
F_{avg}	=	982.7 N
t_{burn}	=	5.01 s
d	=	75 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.658kg
Results: time to apogee: 16.5s, expected altitude: 1232m





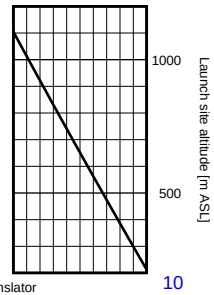
L1120W

7.5"

Aerotech L1500T

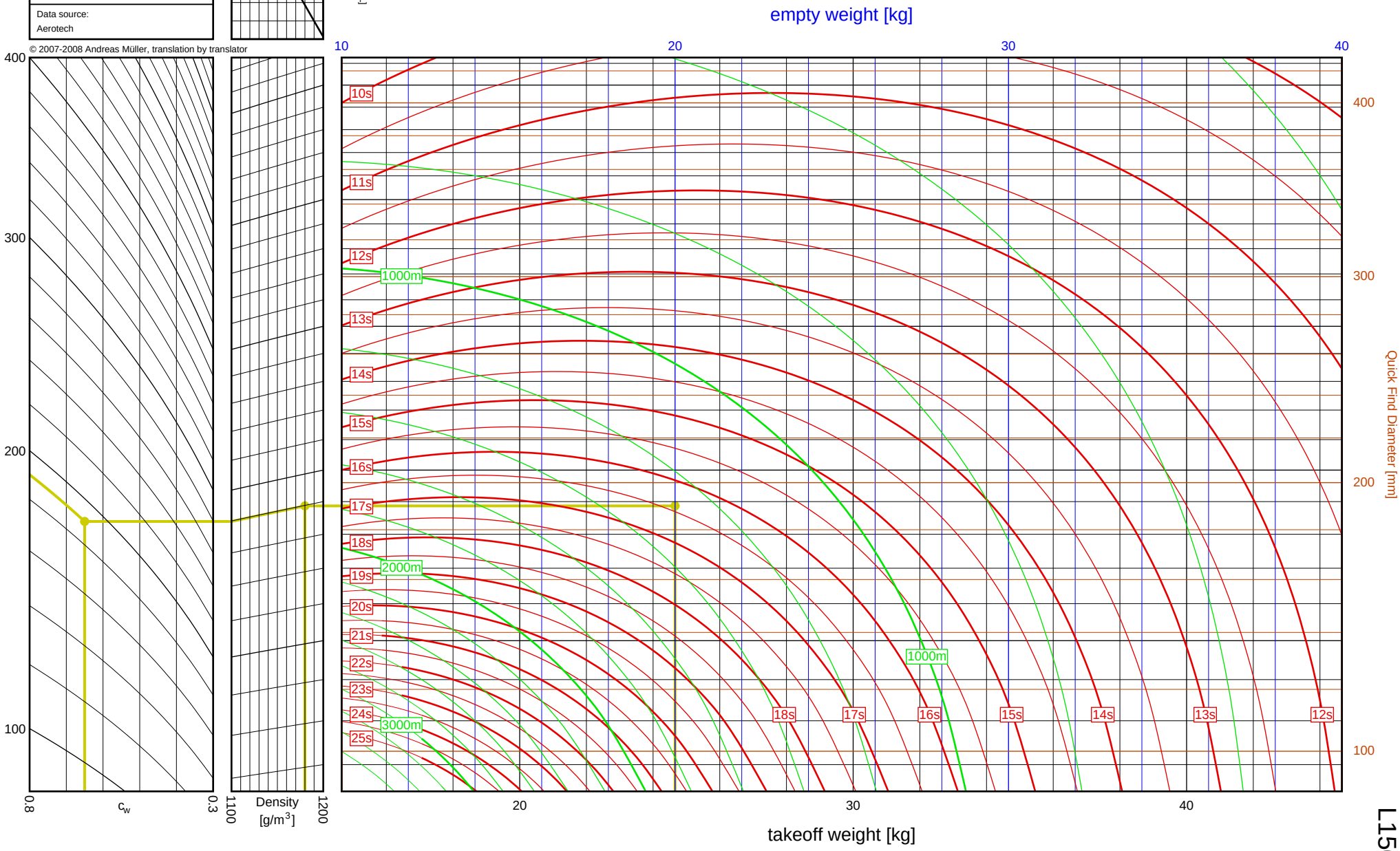
I_{tot}	=	5056.1 Ns
F_{avg}	=	1325.0 N
t_{burn}	=	3.82 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.659kg
Results: time to apogee: 16.4s, expected altitude: 1271m



L1500T

7.5"

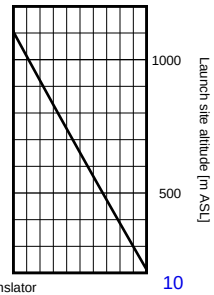
Aerotech L952W

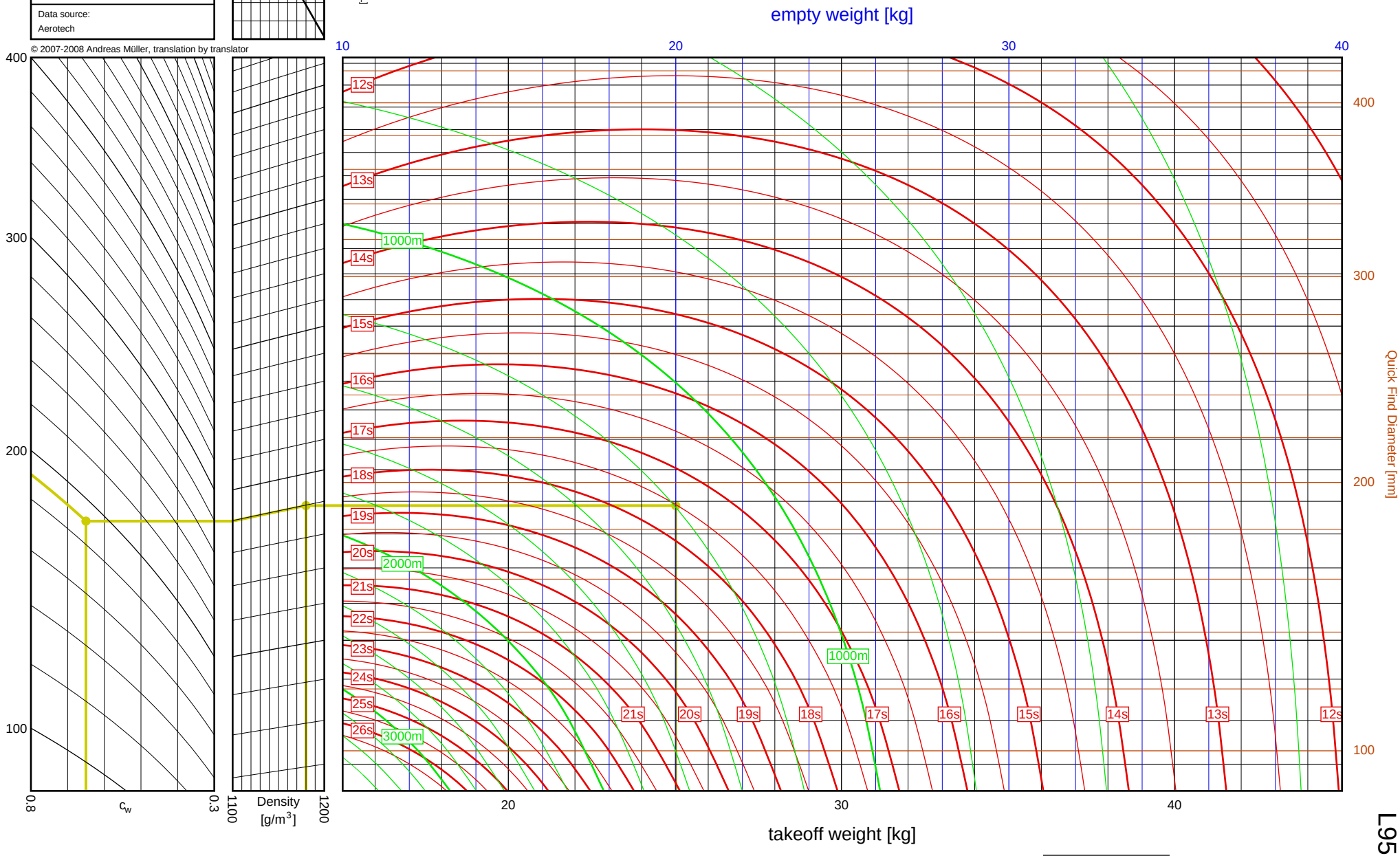
I_{tot}	=	5097.8 Ns
F_{avg}	=	760.9 N
t_{burn}	=	6.70 s
d	=	98 mm

Data source:
Aerotech

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.026kg
Results: time to apogee: 17.5s, expected altitude: 1198m

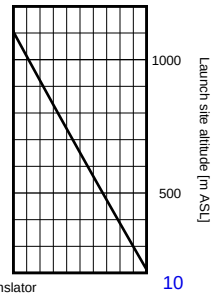




Aerotech L2200G

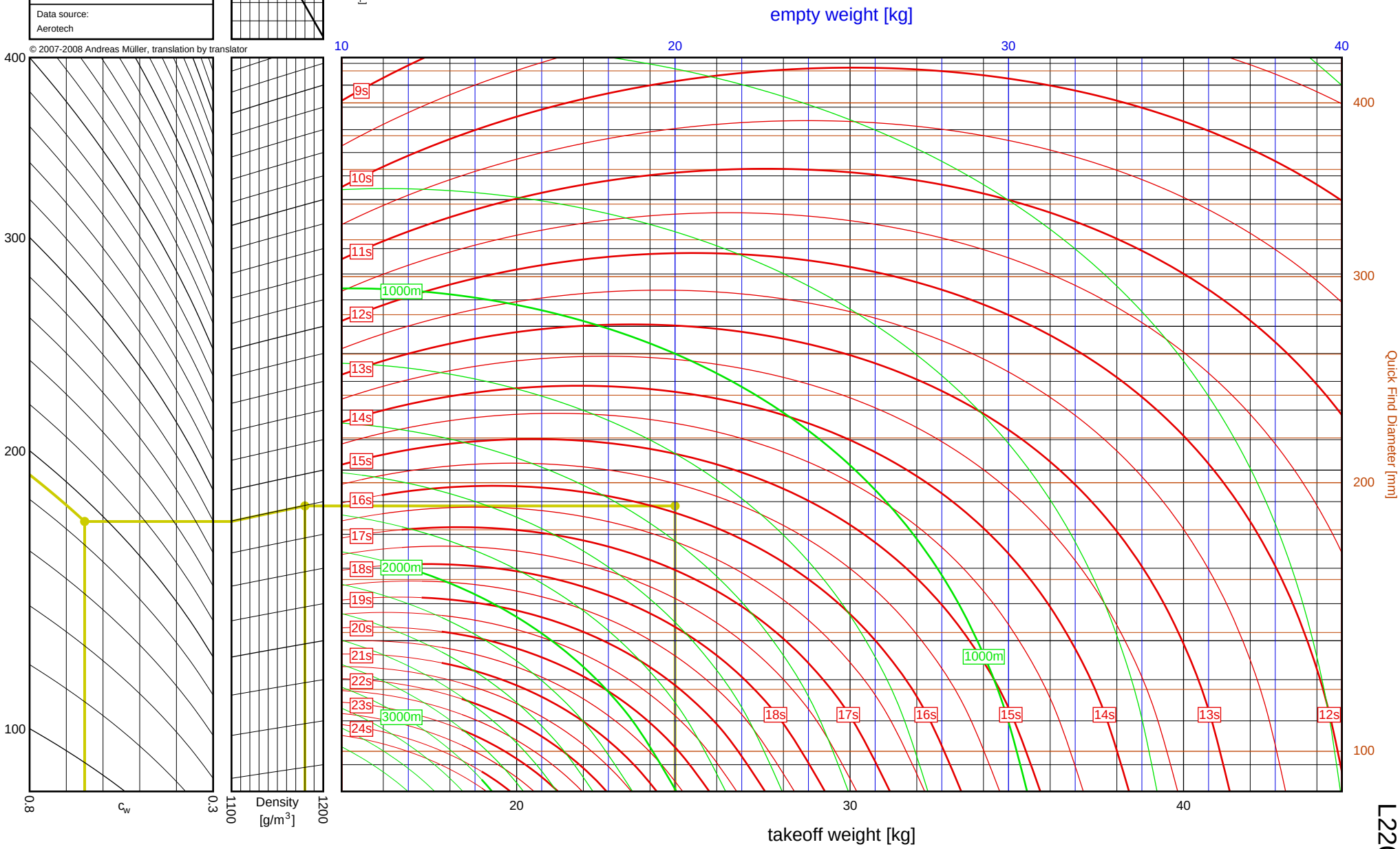
I_{tot}	=	5104.1 Ns
F_{avg}	=	2126.7 N
t_{burn}	=	2.40 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.751kg
Results: time to apogee: 15.9s, expected altitude: 1318m



L2200G

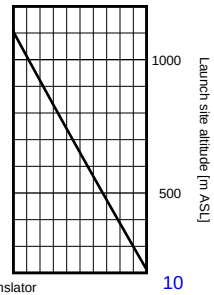
7.5"

L2200G

Aerotech M1500G

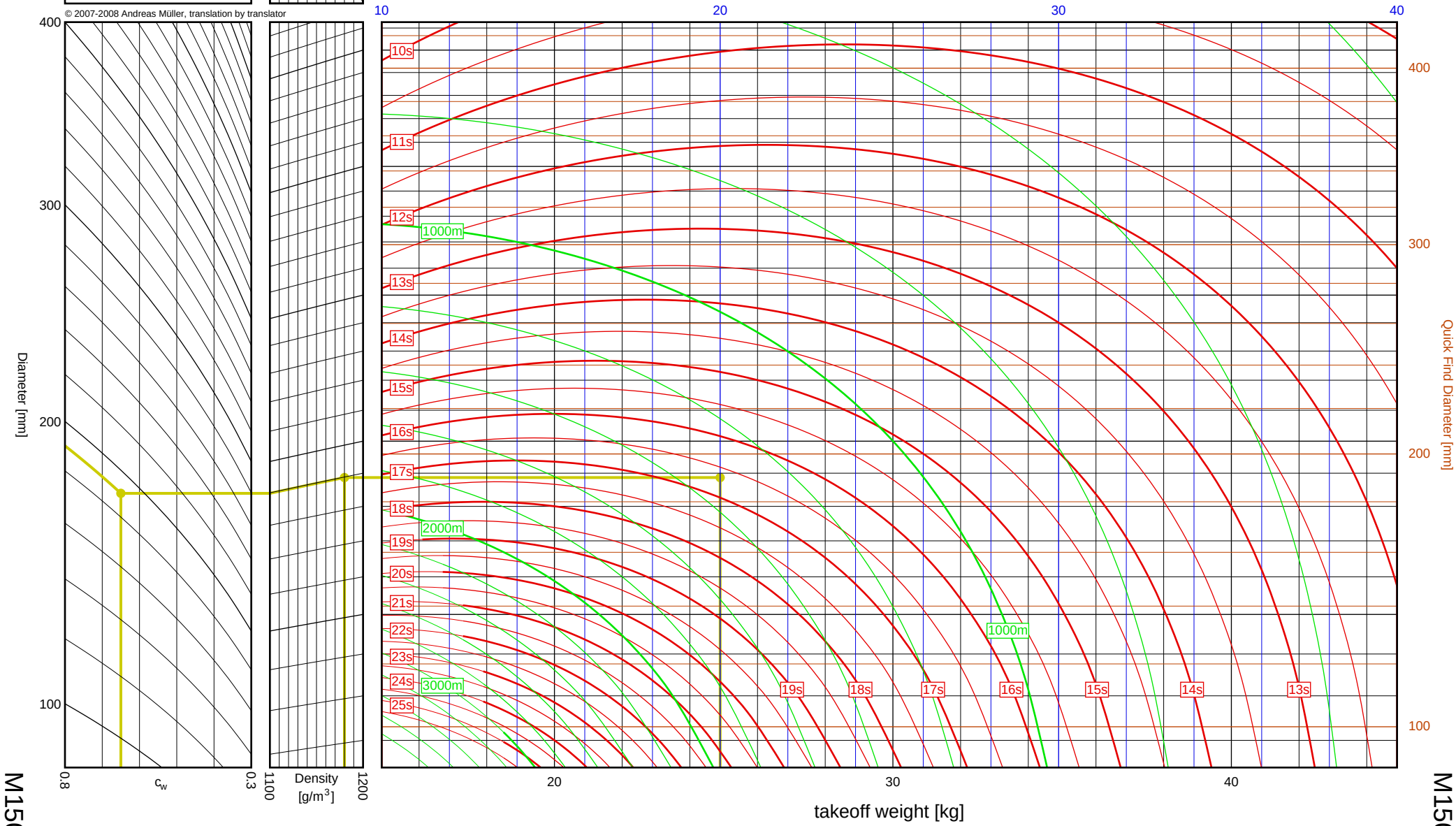
I_{tot}	=	5217.2 Ns
F_{avg}	=	1449.2 N
t_{burn}	=	3.60 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.896kg
Results: time to apogee: 16.7s, expected altitude: 1324m



9-10

M1500G

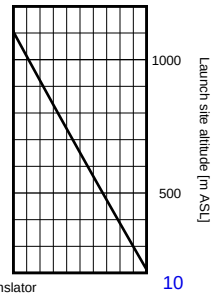
M1500G

7.5"

Aerotech M2030G

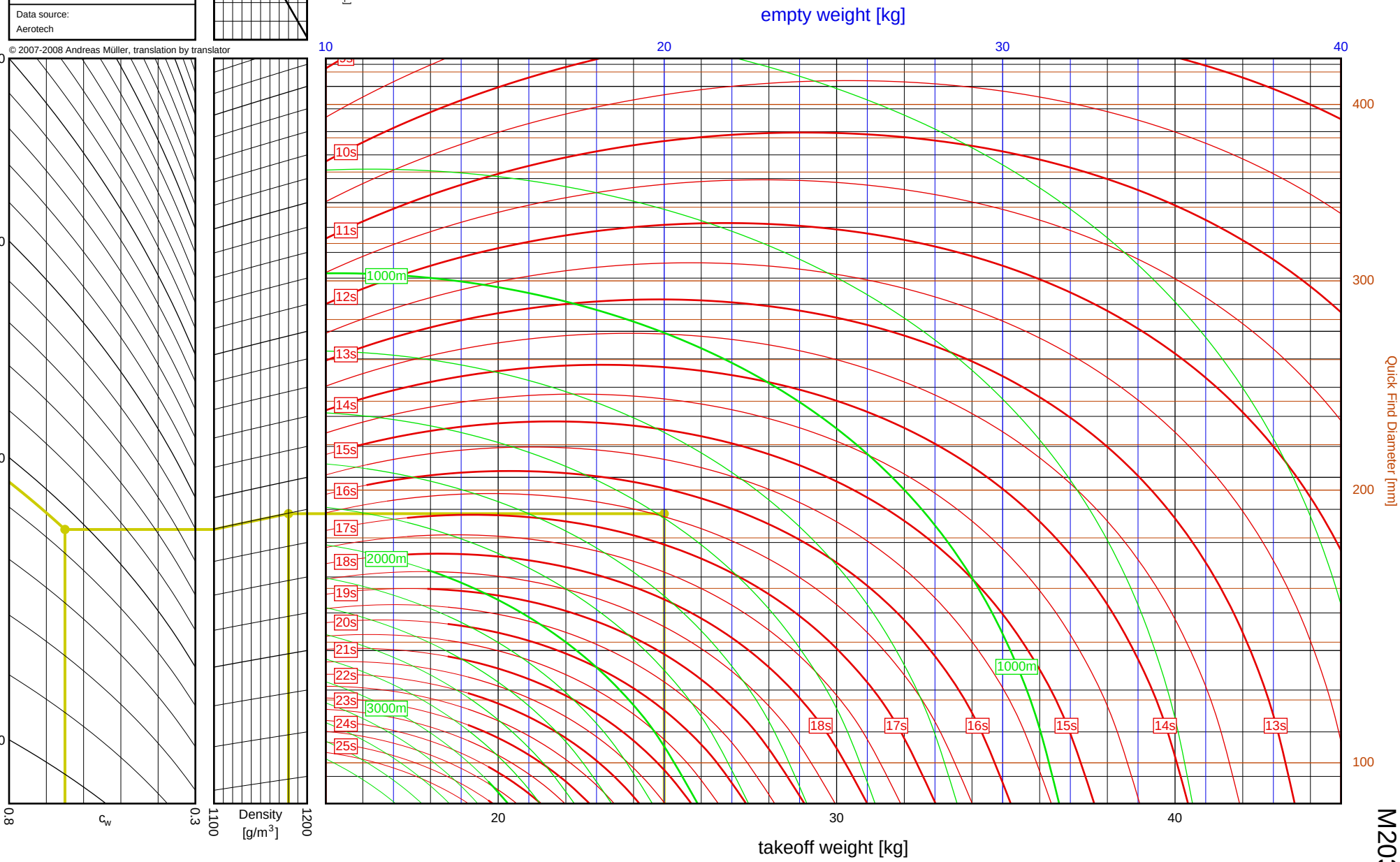
I_{tot}	=	5356.9 Ns
F_{avg}	=	2002.6 N
t_{burn}	=	2.67 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.906kg
Results: time to apogee: 16.5s, expected altitude: 1390m



9-11

M2030G

7.5"

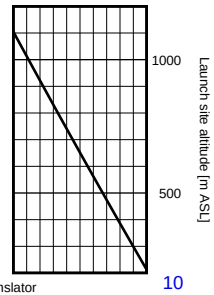
9

M2030G

Aerotech M1297W

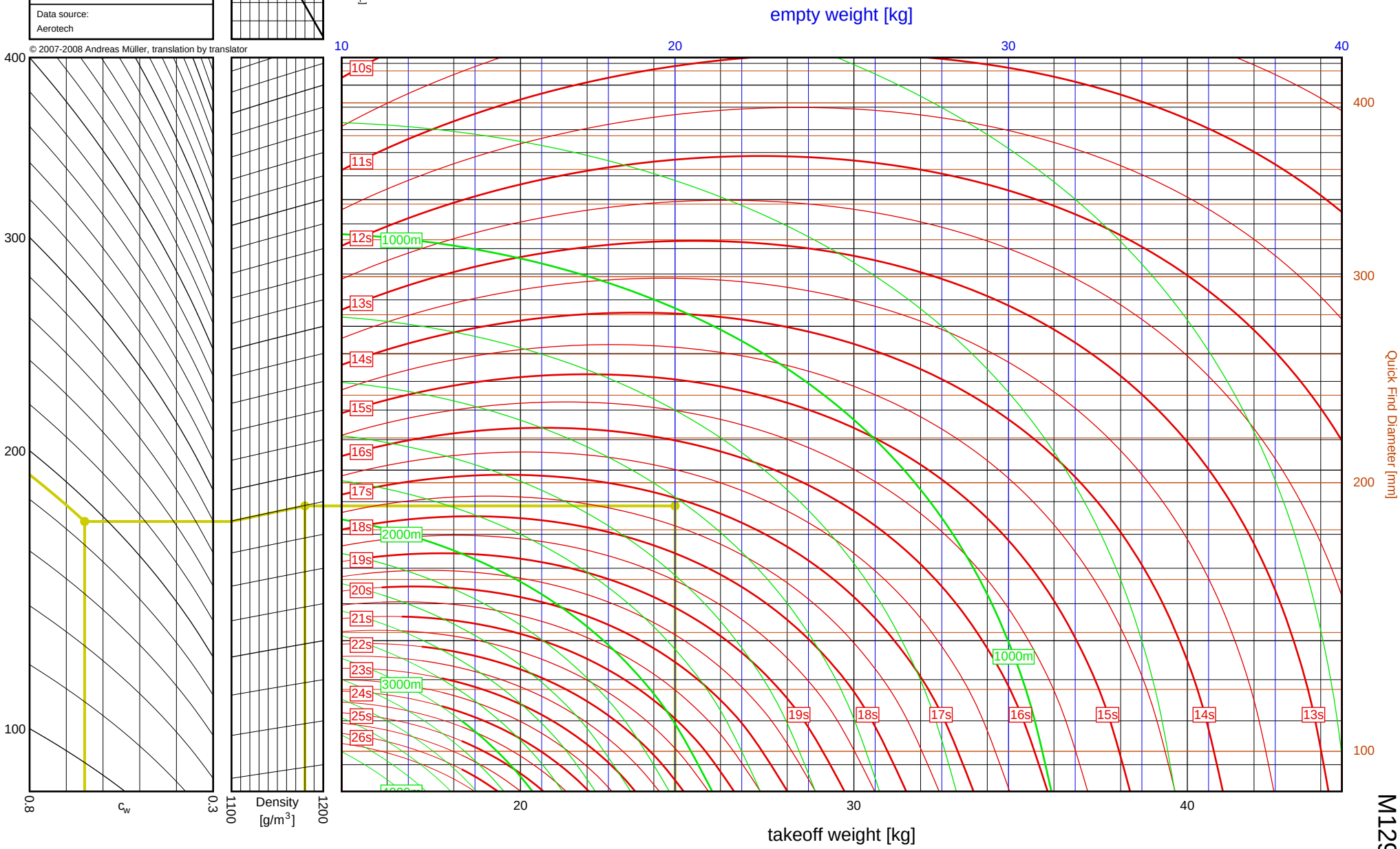
I_{tot}	=	5439.0 Ns
F_{avg}	=	1304.3 N
t_{burn}	=	4.17 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.637kg
Results: time to apogee: 17.1s, expected altitude: 1423m



M1297W

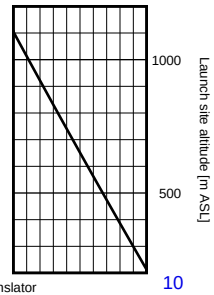
M1297W

7.5"

Aerotech M1550R

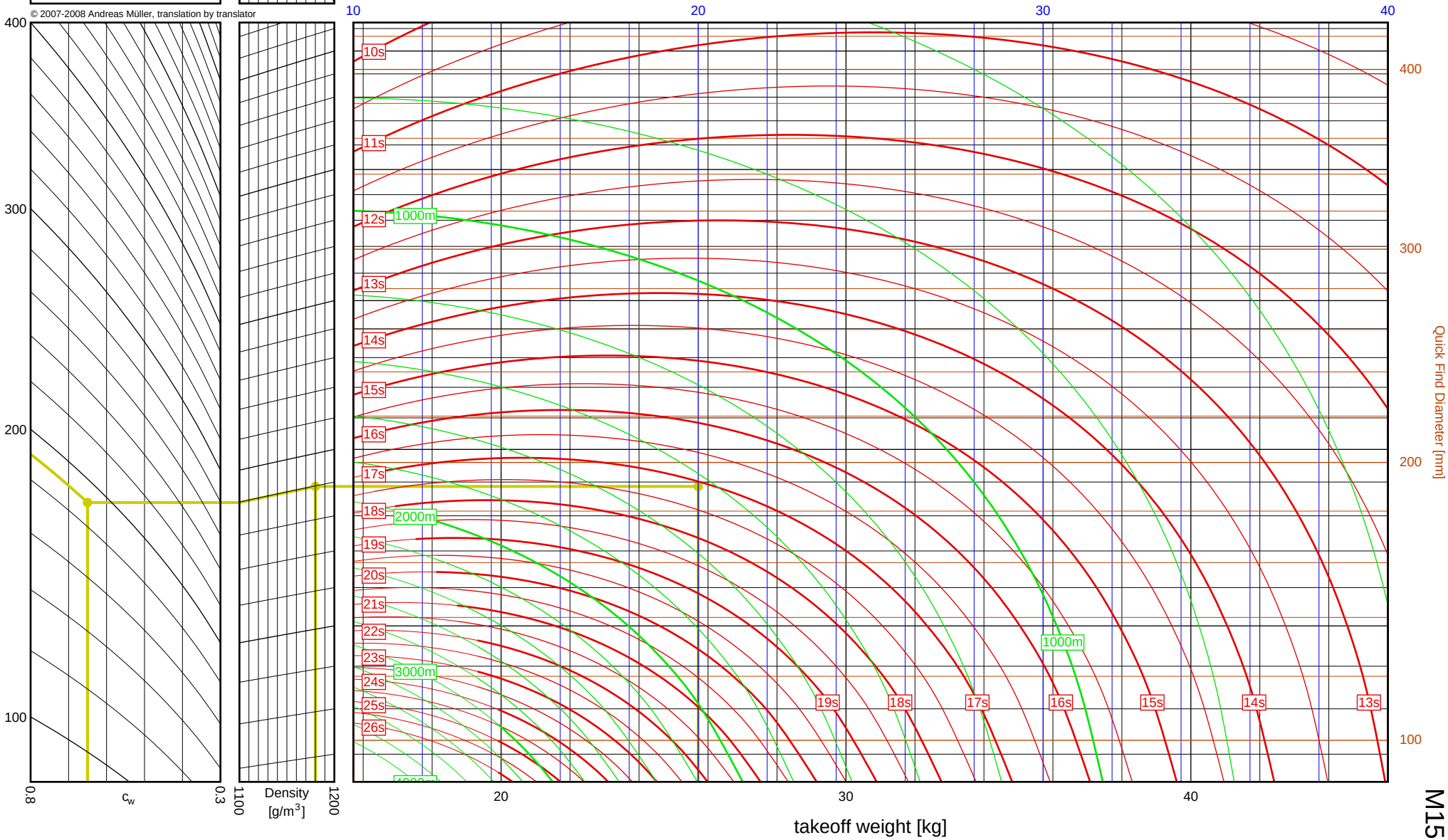
I_{tot}	=	5529.1 Ns
F_{avg}	=	1531.6 N
t_{burn}	=	3.61 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.715kg
Results: time to apogee: 17.1s, expected altitude: 1432m



9-13

M1550R

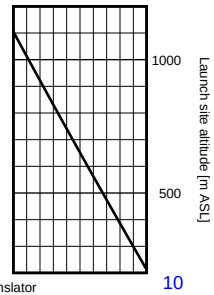
M1550R

7.5"

Aerotech M650W

I_{tot}	=	6006.0 Ns
F_{avg}	=	522.3 N
t_{burn}	=	11.50 s
d	=	75 mm

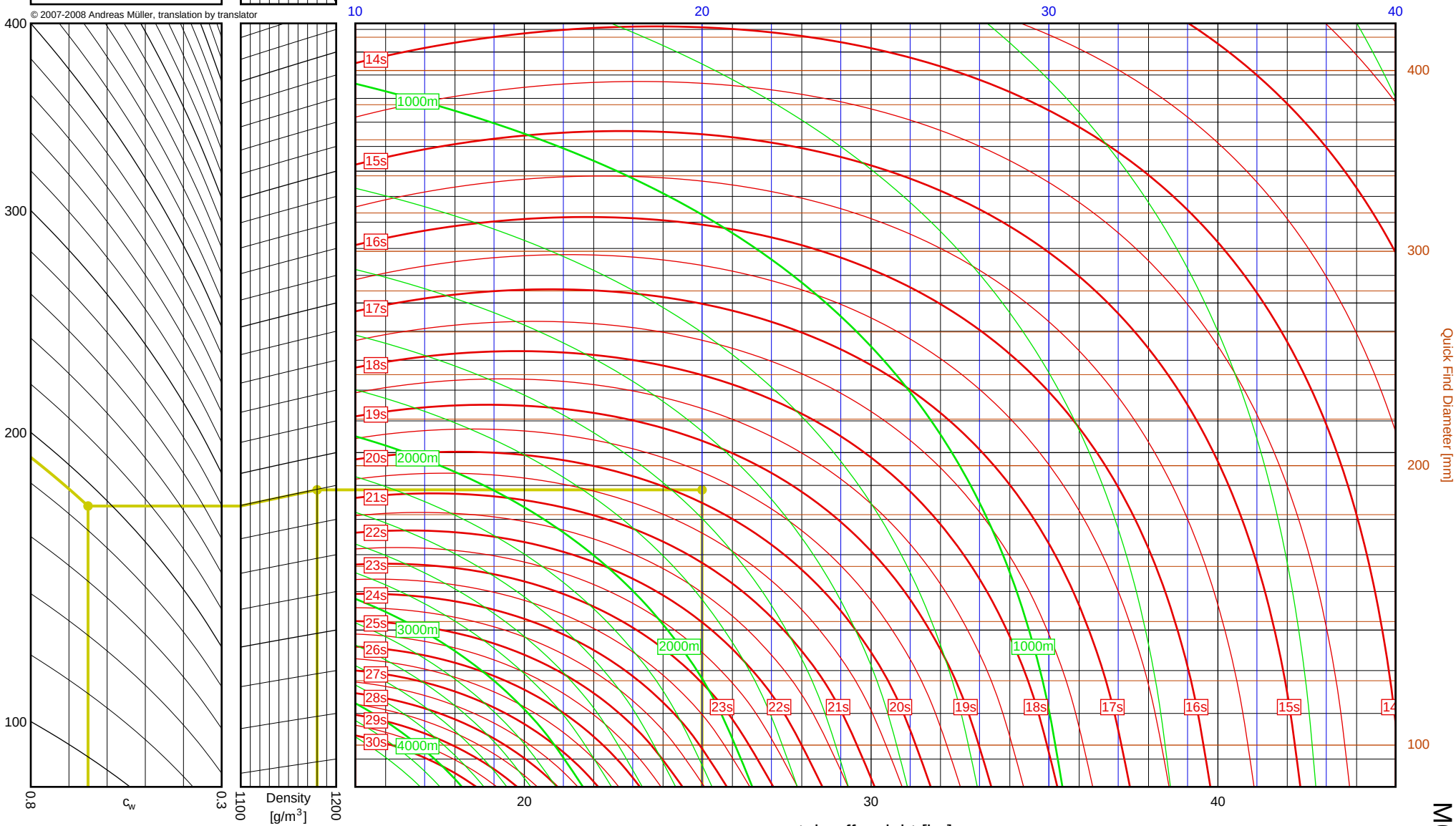
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.125kg
Results: time to apogee: 19.8s, expected altitude: 1533m

empty weight [kg]



9-14

M650W

M650W

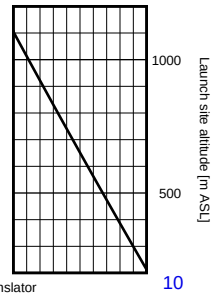
7.5"

Aerotech

M845HW

I_{tot}	=	6601.6 Ns
F_{avg}	=	880.2 N
t_{burn}	=	7.50 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.833kg
Results: time to apogee: 19.9s, expected altitude: 1670m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

M845HW

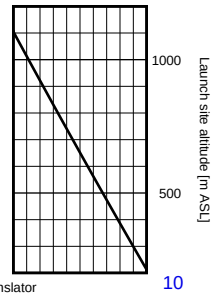
M845HW

7.5"

Aerotech M1315W

I_{tot}	=	6645.3 Ns
F_{avg}	=	1117.1 N
t_{burn}	=	5.95 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.645kg
Results: time to apogee: 19.2s, expected altitude: 1784m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

9-16

M1315W

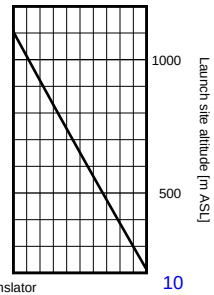
M1315W

7.5"

Aerotech M1600R

I_{tot}	=	6993.2 Ns
F_{avg}	=	1554.0 N
t_{burn}	=	4.50 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 27.004kg
Results: time to apogee: 19.3s, expected altitude: 1844m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

9-17

M1600R

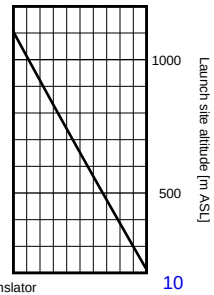
M1600R

7.5"

Aerotech M3500R

I_{tot}	=	7312.0 Ns
F_{avg}	=	3111.6 N
t_{burn}	=	2.35 s
d	=	75 mm

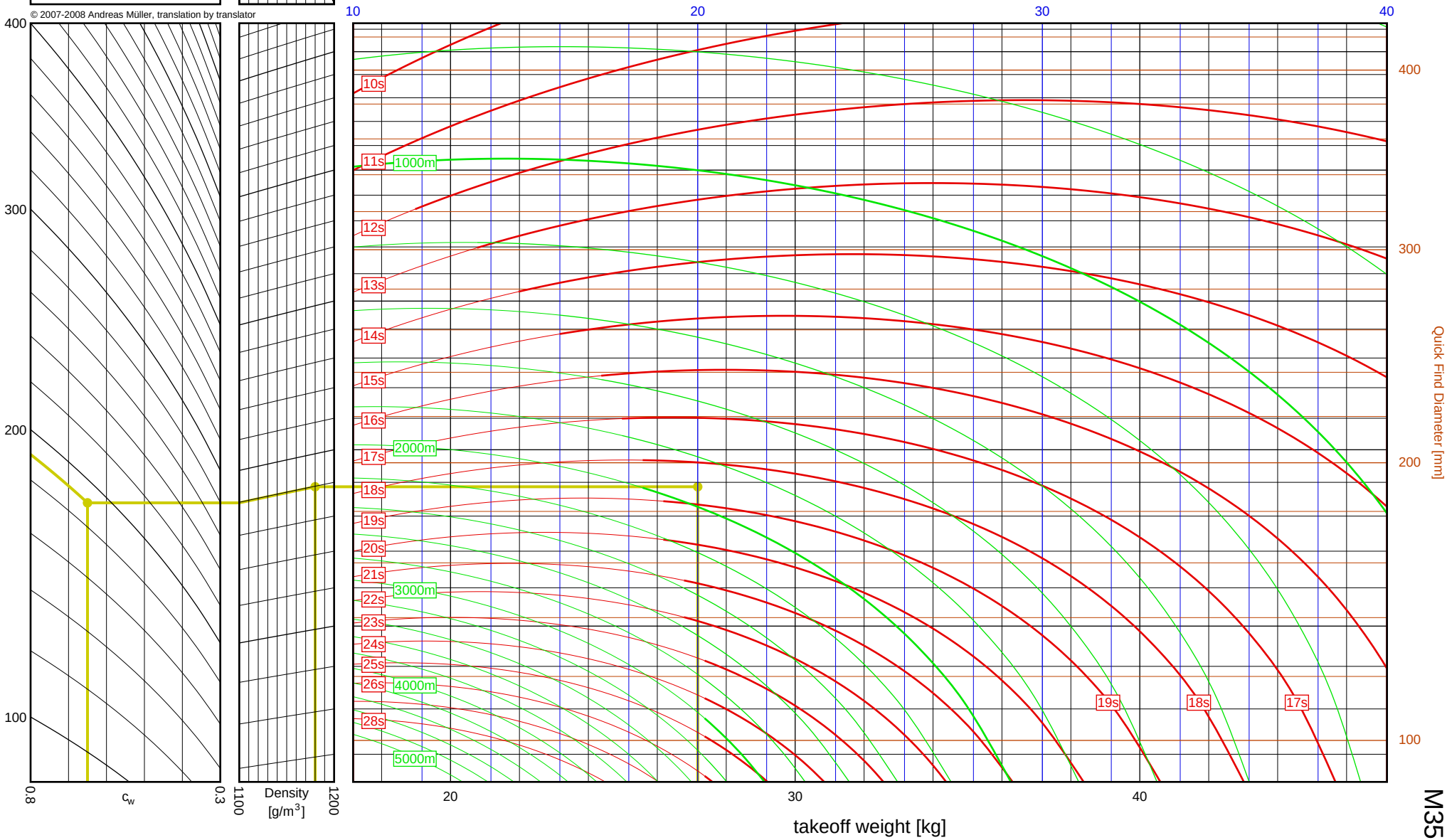
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 27.173kg
Results: time to apogee: 18.6s, expected altitude: 1919m

empty weight [kg]



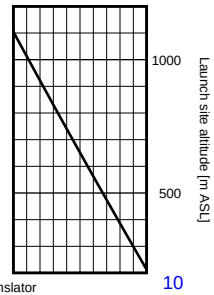
M3500R

M3500R

Aerotech M1850W

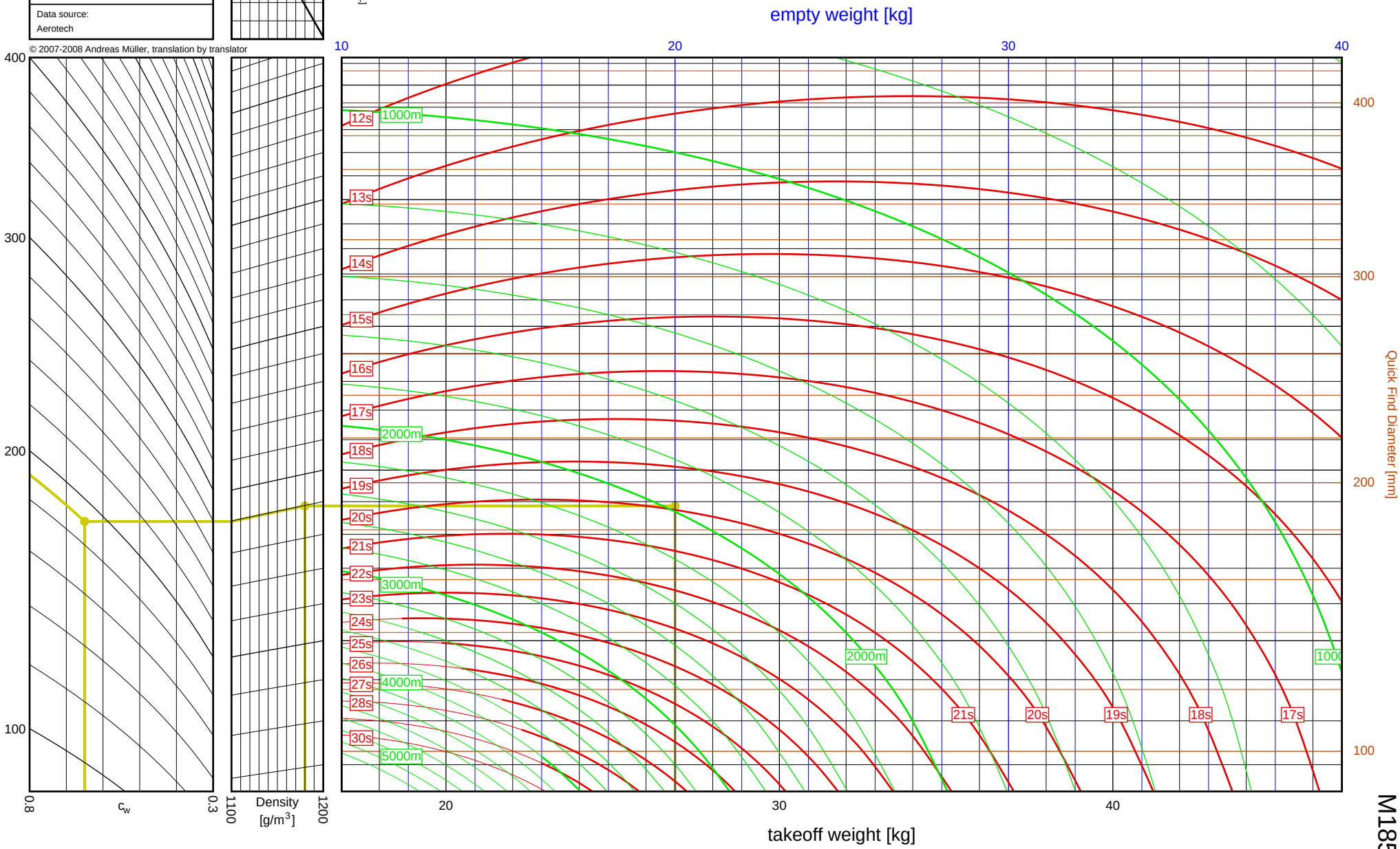
I_{tot}	=	7365.9 Ns
F_{avg}	=	1133.2 N
t_{burn}	=	6.50 s
d	=	75 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

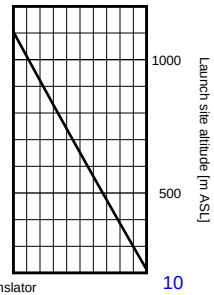
Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.871kg
Results: time to apogee: 19.9s, expected altitude: 1978m



Aerotech M1419W

I_{tot}	=	7582.7 Ns
F_{avg}	=	1083.2 N
t_{burn}	=	7.00 s
d	=	98 mm

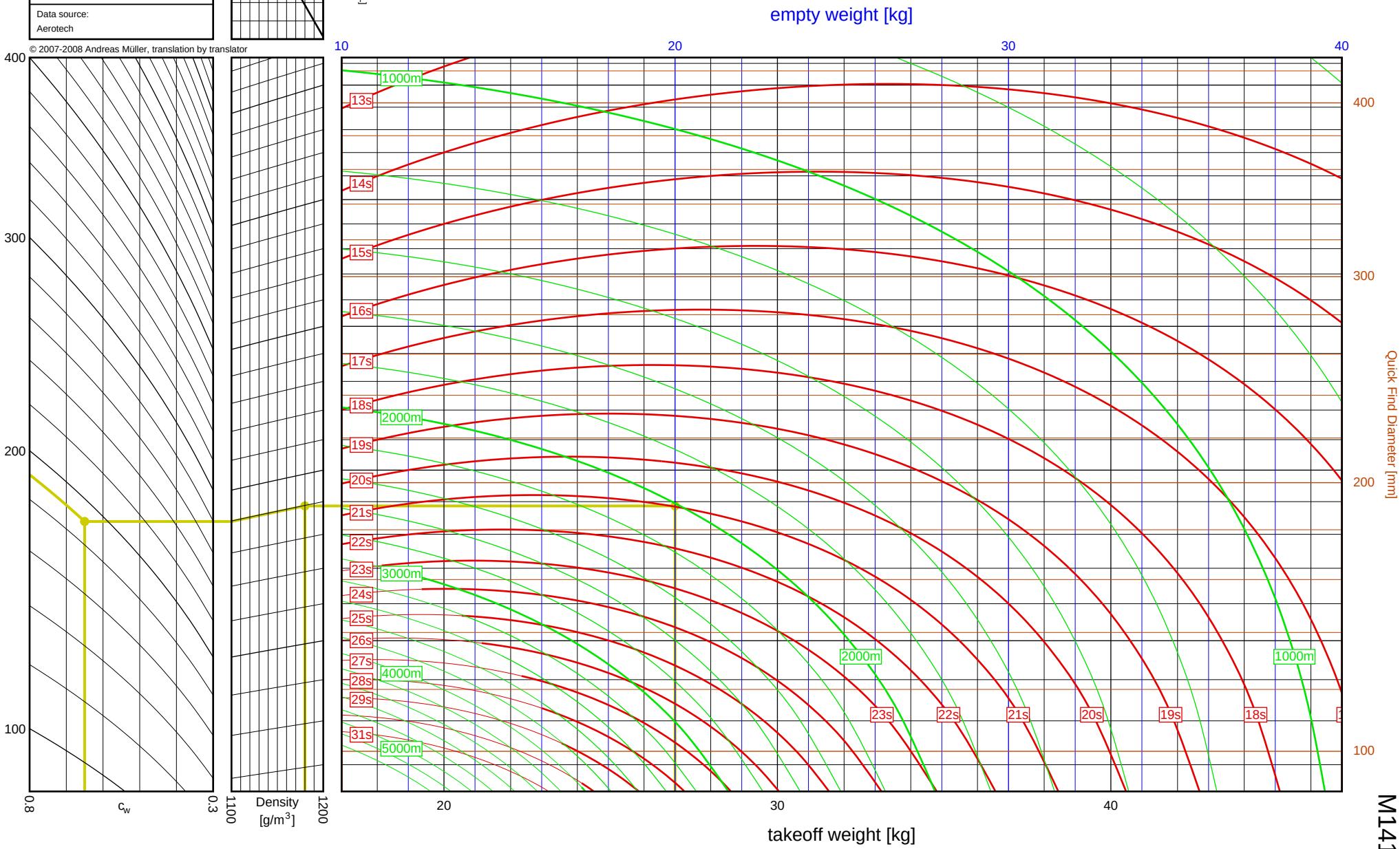
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.931kg

Results: time to apogee: 21.0s, expected altitude: 2012m



M1419W

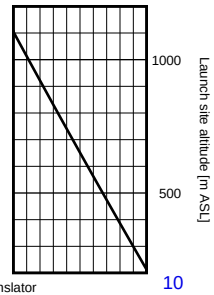
M1419W

7.5"

Aerotech M750W

I_{tot}	=	9255.9 Ns
F_{avg}	=	578.5 N
t_{burn}	=	16.00 s
d	=	98 mm

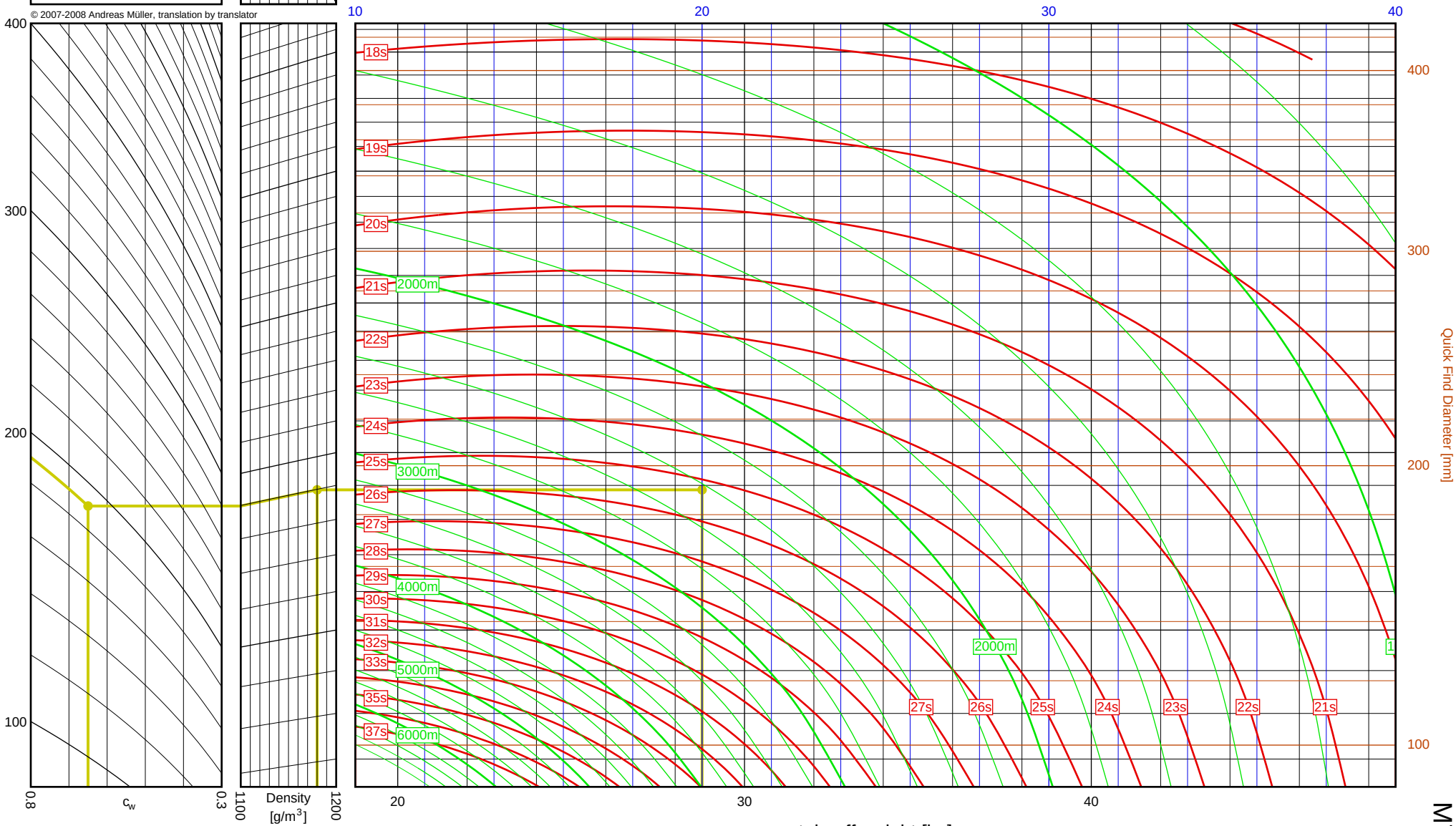
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 28.776kg
Results: time to apogee: 25.3s, expected altitude: 2429m

empty weight [kg]



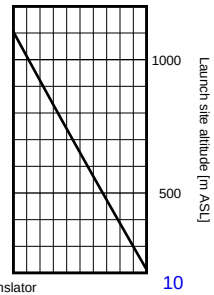
M750W

M750W

Aerotech N1000W

I_{tot}	=	14138.4 Ns
F_{avg}	=	876.2 N
t_{burn}	=	16.14 s
d	=	98 mm

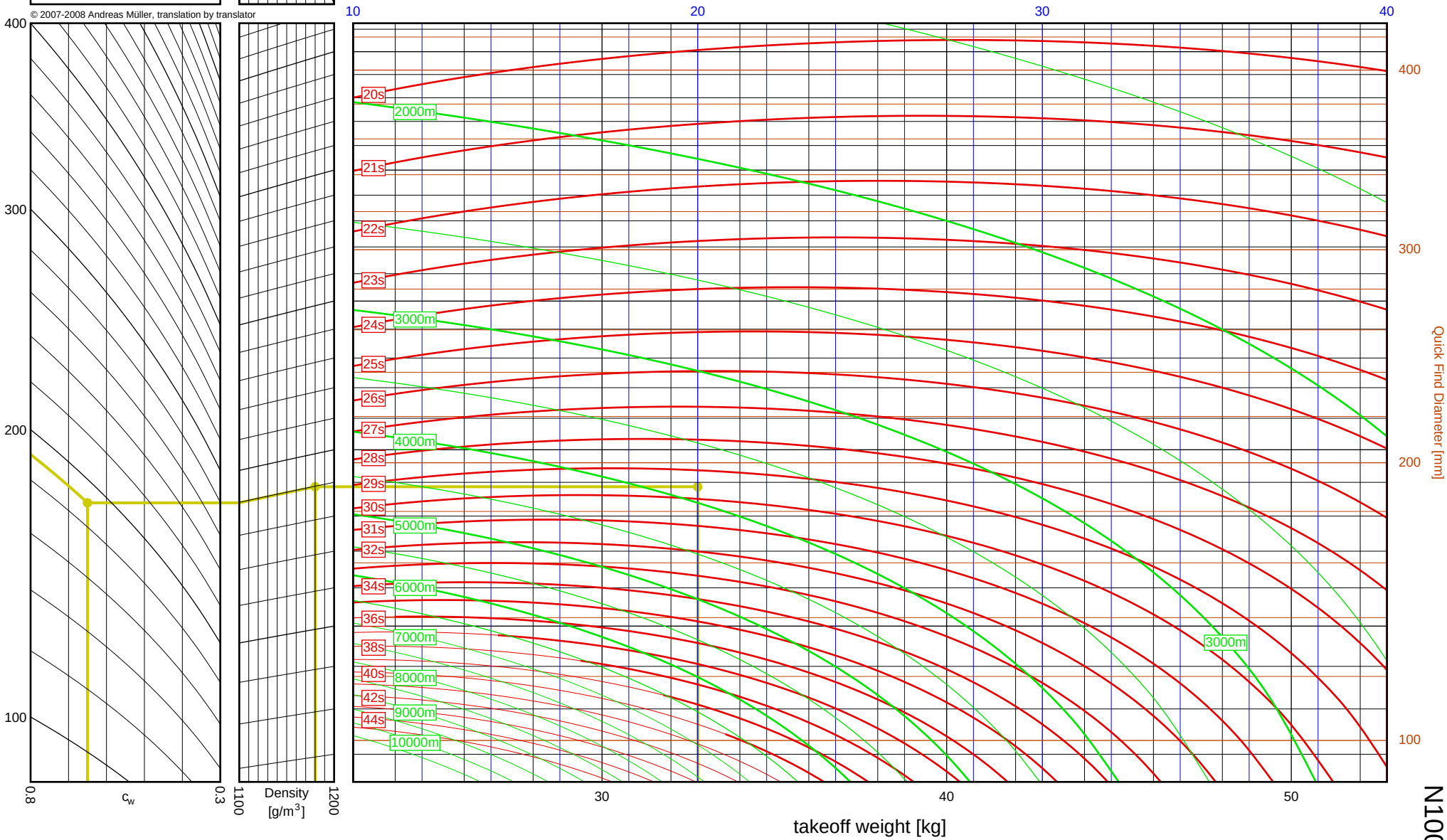
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 32.777kg
Results: time to apogee: 29.6s, expected altitude: 3861m

empty weight [kg]



N1000W

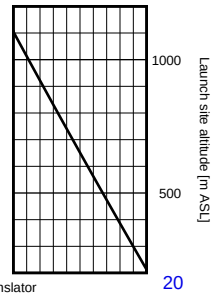
N1000W

7.5"

Aerotech M1600R

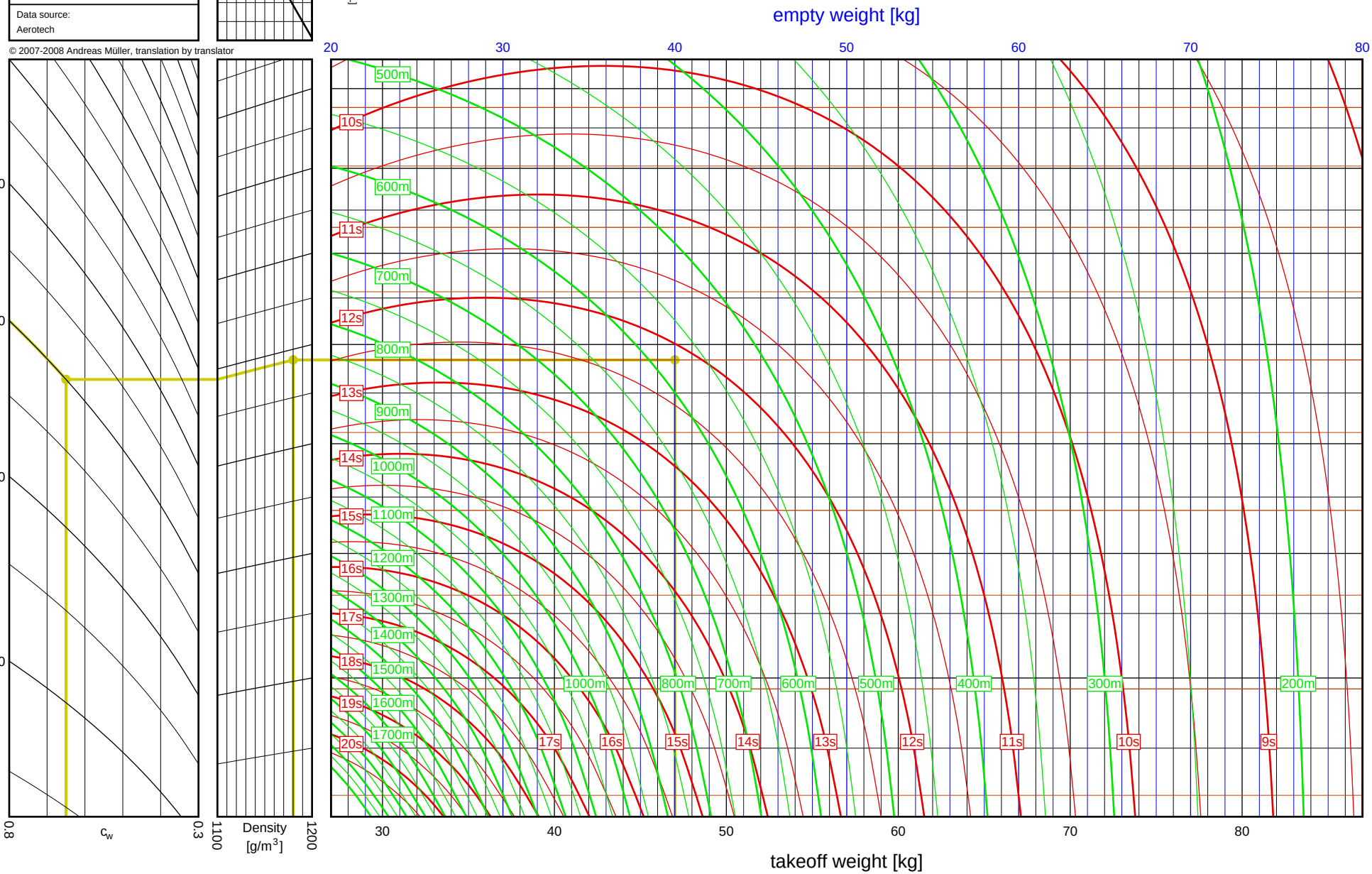
I_{tot}	=	6993.2 Ns
F_{avg}	=	1554.0 N
t_{burn}	=	4.50 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 47.004kg
Results: time to apogee: 12.1s, expected altitude: 577m



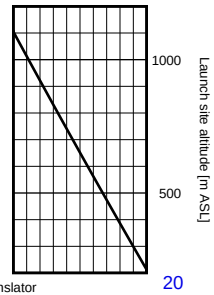
M1600R

M1600R

Aerotech M2400T

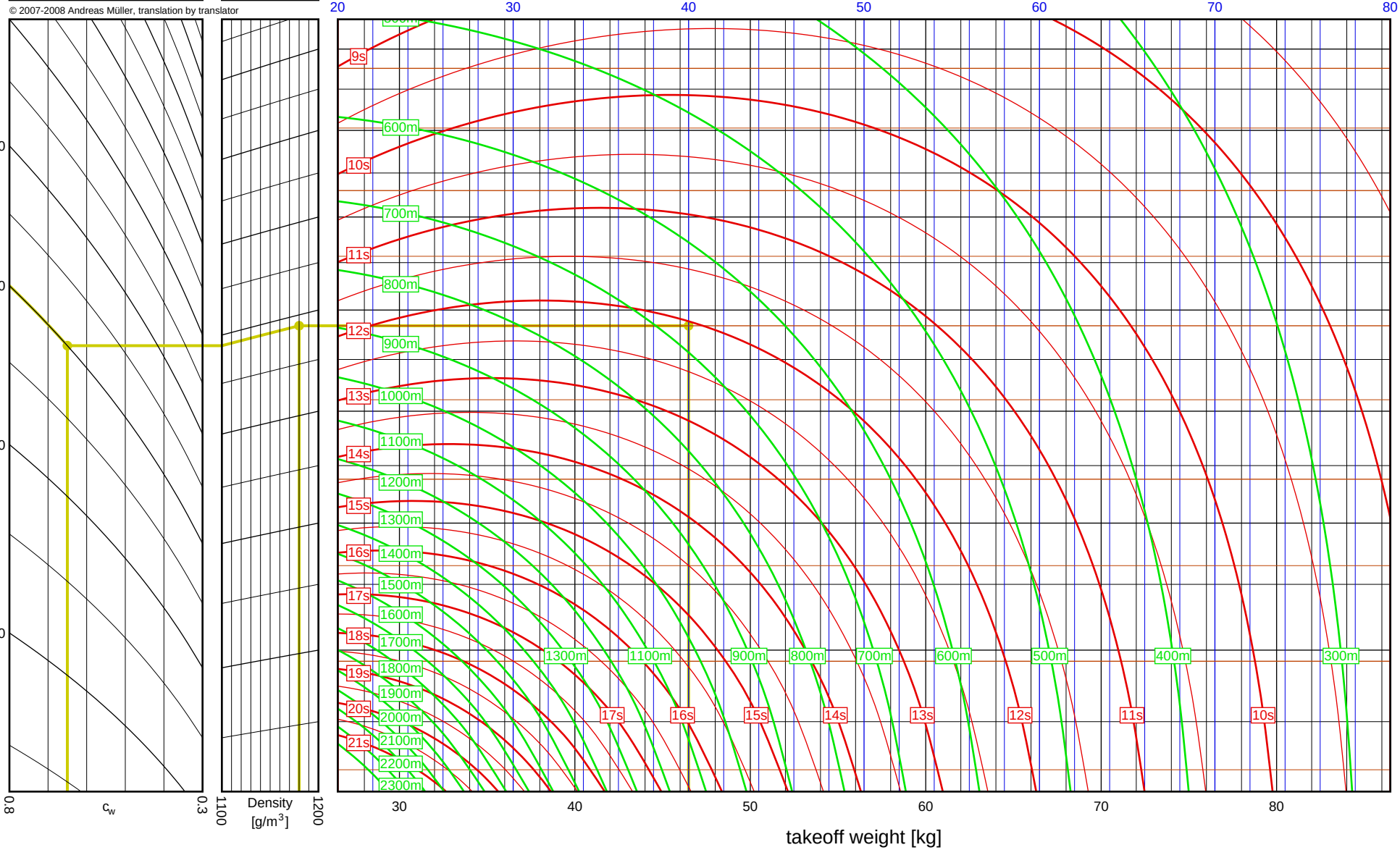
I_{tot}	=	7619.8 Ns
F_{avg}	=	2177.1 N
t_{burn}	=	3.50 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 46.483kg
Results: time to apogee: 12.0s, expected altitude: 675m



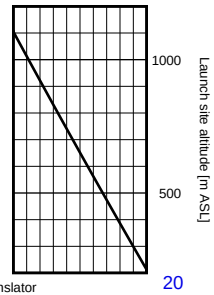
M2400T

M2400T

Aerotech M2100G

I_{tot}	=	7655.8 Ns
F_{avg}	=	2162.1 N
t_{burn}	=	3.54 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 47.030kg
Results: time to apogee: 12.1s, expected altitude: 673m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

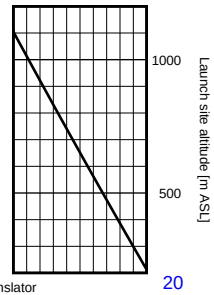
Density [g/m^3]

M2100G

Aerotech M1800FJ

I_{tot}	=	8212.7 Ns
F_{avg}	=	1658.5 N
t_{burn}	=	4.95 s
d	=	98 mm

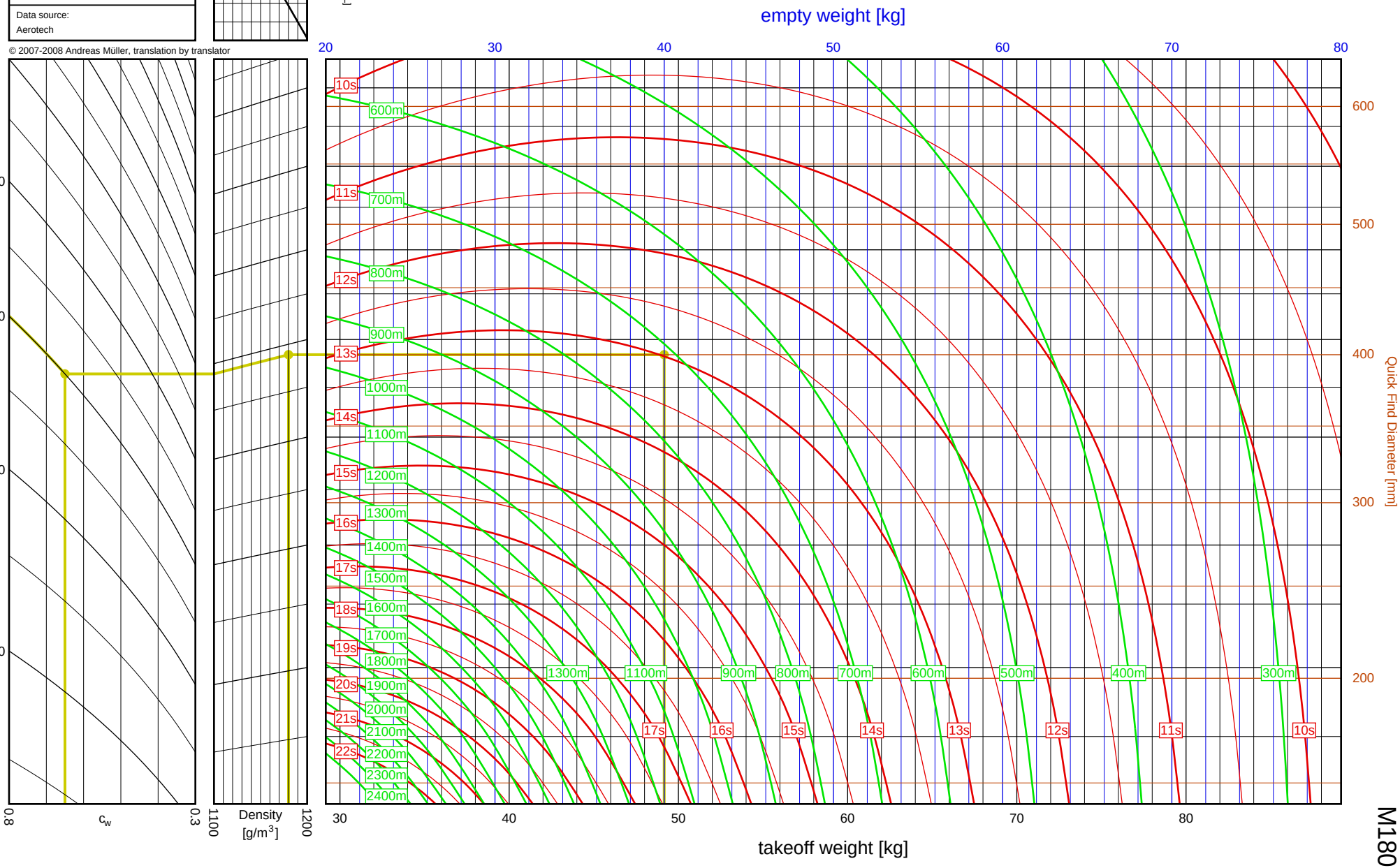
Data source: Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 49.162kg

Results: time to apogee: 13.0s, expected altitude: 711m



10-4

M1800FJ

M1800FJ

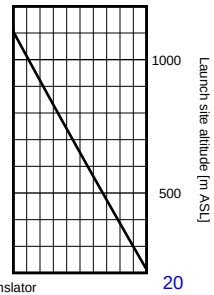
X

10

Aerotech M2000R

I_{tot}	=	9181.0 Ns
F_{avg}	=	1953.4 N
t_{burn}	=	4.70 s
d	=	98 mm

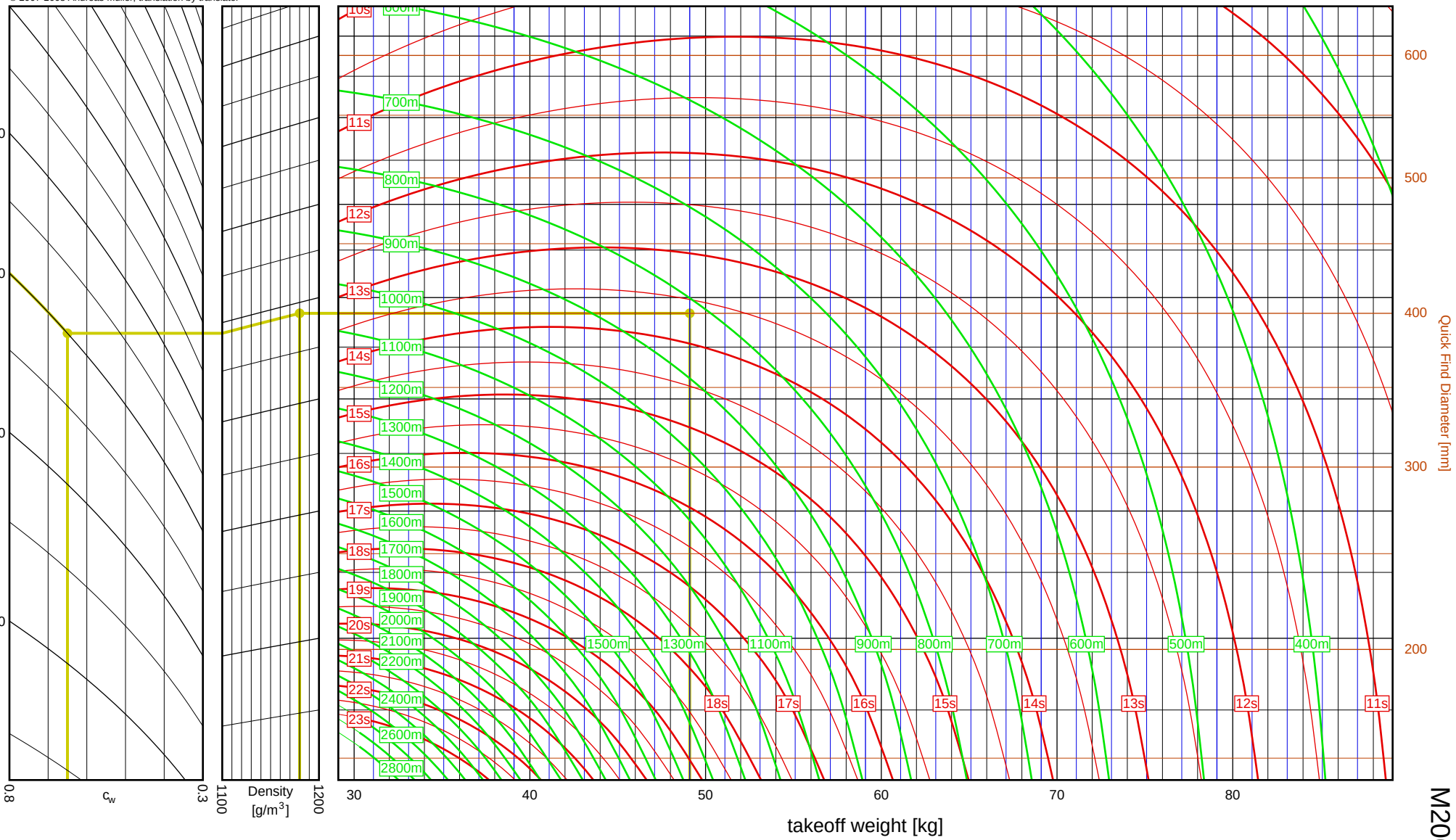
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 49.099kg
Results: time to apogee: 13.7s, expected altitude: 819m

empty weight [kg]



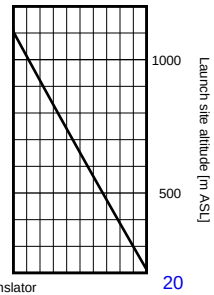
M2000R

M2000R

Aerotech M2500T

I_{tot}	=	9573.0 Ns
F_{avg}	=	2245.1 N
t_{burn}	=	4.26 s
d	=	98 mm

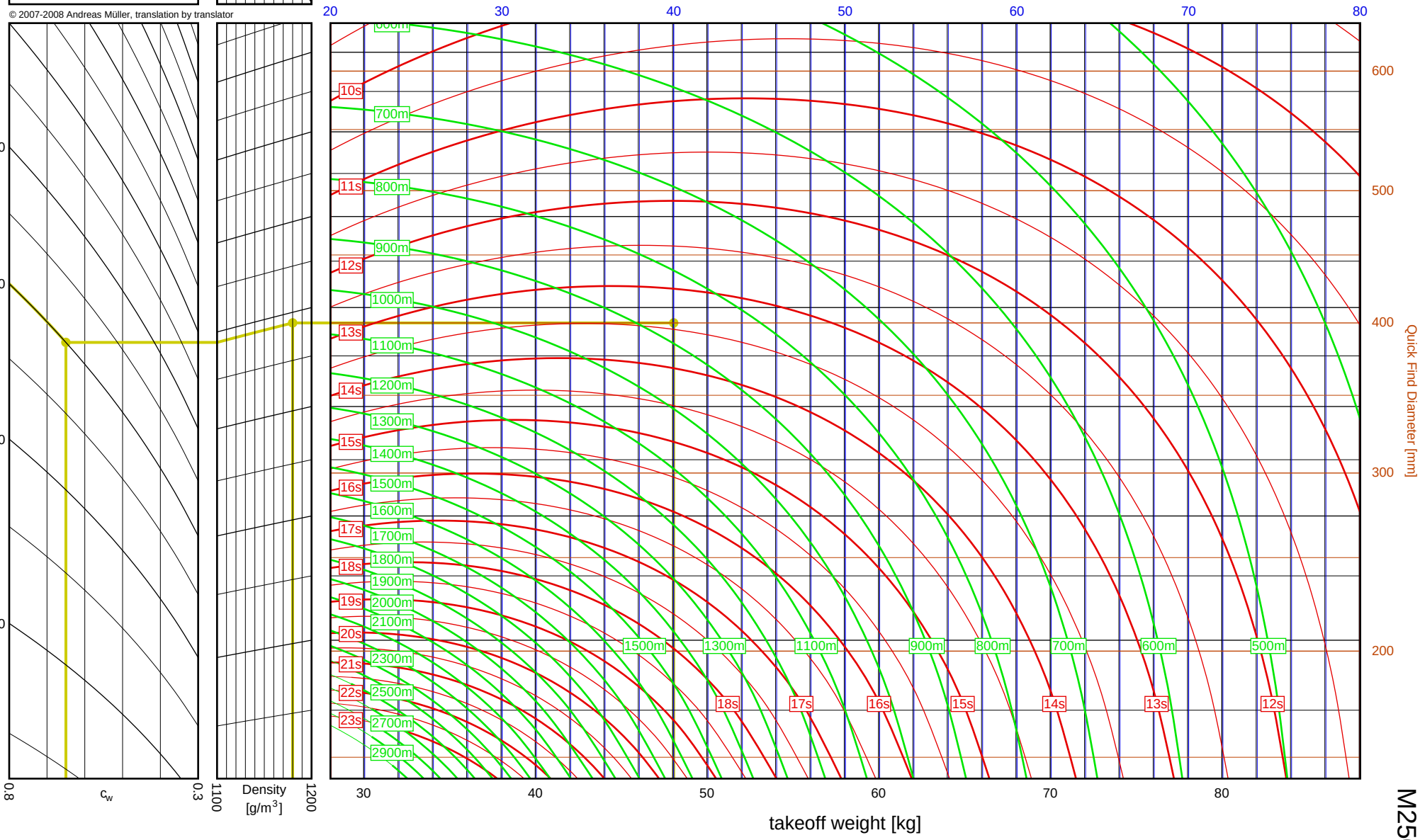
Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 48.064kg
Results: time to apogee: 13.4s, expected altitude: 871m

empty weight [kg]



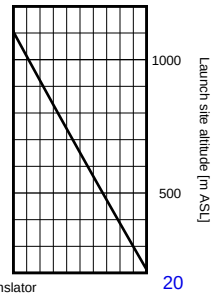
M2500T

M2500T

Aerotech M1939W

I_{tot}	=	10339.7 Ns
F_{avg}	=	1477.1 N
t_{burn}	=	7.00 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 48.845kg
Results: time to apogee: 15.0s, expected altitude: 936m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

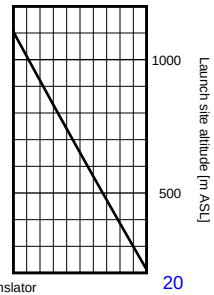
M1939W

Aerotech

N2000W

I_{tot}	=	13263.4 Ns
F_{avg}	=	1727.2 N
t_{burn}	=	7.68 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 52.283kg
Results: time to apogee: 16.3s, expected altitude: 1224m

empty weight [kg]

20 30 40 50 60 70 80

12s 13s 14s 15s 16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 26s 27s
1000m 2000m 3000m 4000m

600 500 400 300 200
Quick Find Diameter [mm]

500 400 300 200
Diameter [mm]

0.8 c_w 0.3

1100 Density [g/m^3] 1200

40 50 60 70 80 90
takeoff weight [kg]

20s 19s 18s 17s 16s 1000m

10-8

N2000W

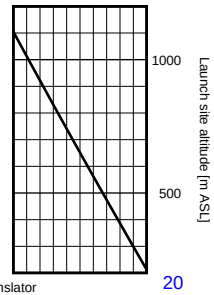
N2000W

X 10

Aerotech N4800T

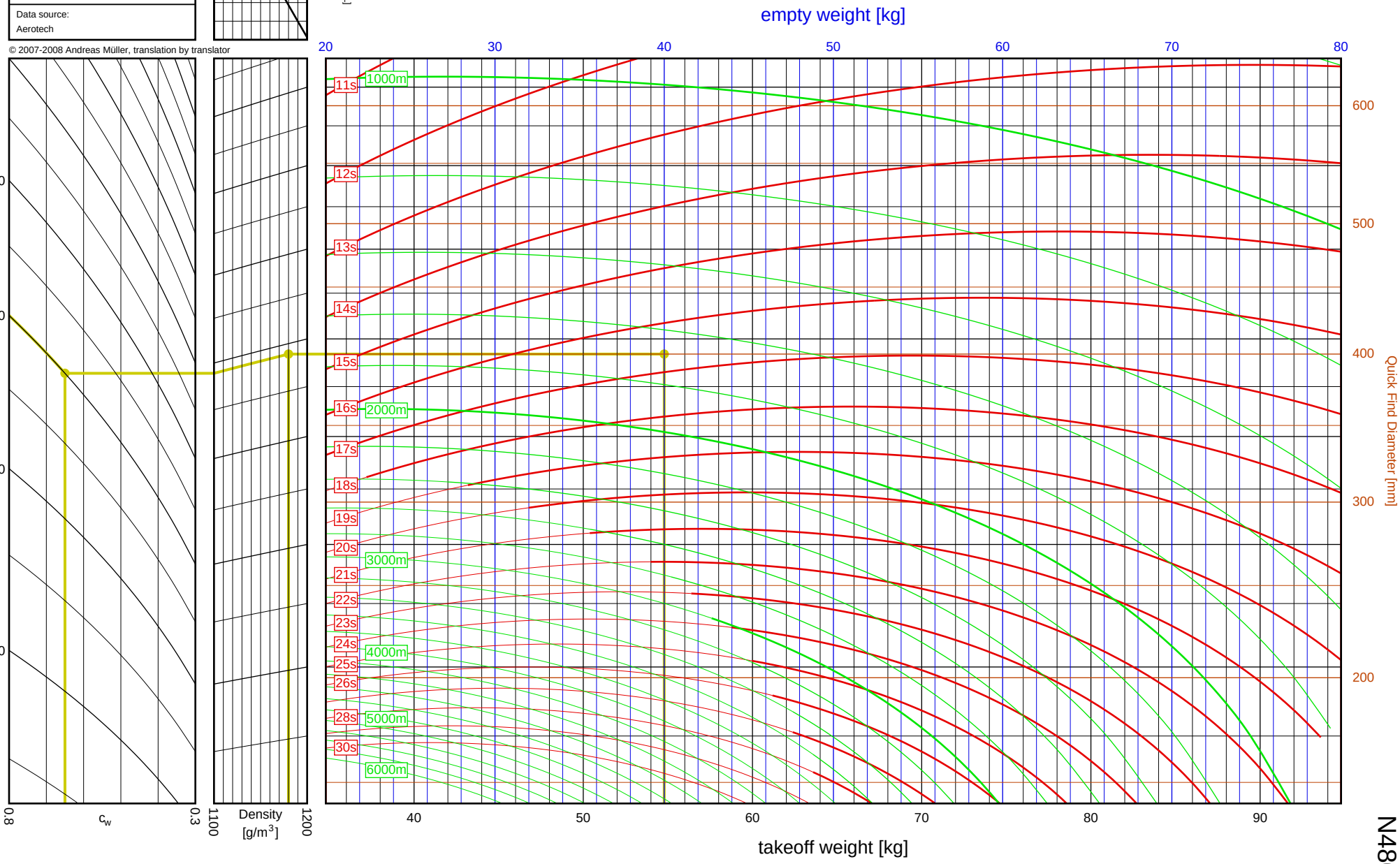
I_{tot}	=	19273.9 Ns
F_{avg}	=	3702.2 N
t_{burn}	=	5.21 s
d	=	98 mm

Data source:
Aerotech



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 54.784kg
Results: time to apogee: 16.6s, expected altitude: 1686m



N4800T

N4800T