

Design Loads

 wing lift 150 lb @ 50 m/s
 root bend.mom. 1400 lb-in
 root cap load 3000 lb
 root cap area 0.037 in² top
 0.037 in² bot
 cap stress 81 ksi top
 81 ksi bot
 wrap stress 11 ksi (shear)
 root torsion 25 lb-in
 root skin th. 0.007 in
 wing skin shear 480 psi

Wing spar weights

 caps 56 g (prepreg uni CF)
 core 15 g (6 lb endgrain balsa)
 wrap 15 g (2 oz glass)
 join 15 g (0.315" CF tube)
 tubes 3 g (Kevlar)
 boxes 6 g (plywood, glass)
 glue 6 g

Wing structure weights

 core 97 g (2.3 lb Spyderfoam)
 skin 83 g (1.7oz Kevlar)
 spar 116 g
 fill 6 g (microballoons+flox)
 webs 7 g (vertical grain balsa)
 misc 15 g

Wing panel weights

 center 190 g
 tips 134 g

CF boom
 0.59" -> 0.34" ID
 0.016" wall

2 layers

Aegea II 2m

Mark Drela 24 Aug 02

mass = 21 oz
 m/A = 5.8 oz/ft²
 area = 520 sq in
 span = 78.6 in
 A.R. = 11.9

Camber Settings

 Flap Aileron
 winch: +20 +20
 zoom : -2 -2
 run : -2 -2
 range: 0 0
 float: +3 +3
 brake: +60 +10

Flaps follow
 ailerons 1:2

Kevlar fuselage shell
 1.7oz 4 layers,
 CF reinforcements

wing +3 deg.

tail +1 deg.

HT12
 5.0% t
 0.0% c

HT08
 5.0% t
 0.0% c

AG47ct
 5.0% t
 1.7% c
 1.3% c
 -0.5 deg

Spyderfoam
 balsa insert
 2.9 oz CF caps
 1.0 oz Kevlar

All-moving tail
 49 sq in 9.4%
 Vh = 0.40
 -17 ... +20 deg

AG46ct
 6.1% t
 2.0% c
 1.7% c
 -0.5 deg

Item weights

 650 NiMH 53 g
 4 JR241 36 g
 2 HS81MG 40 g
 Quantum-6 14 g
 wiring 12 g

 fuse 78 g
 boom 17 g
 stab 10 g
 rudd 8 g
 wing 320 g

 Total 588 g

AG45ct
 6.9% t
 2.2% c
 1.8% c

AG44ct
 7.3% t
 2.3% c
 1.9% c

36 sq in 6.9%
 Vv = 0.026
 +/-30 deg

CF V-strut
 CF platform/horn
 4-40 Nylon bolt

Spyder foam
 1.0 oz Kevlar
 Kevlar hinge

