How perceived size has been calculated

S1
(Actual Size of Sillouhette of Object)

Measurement Plane

S2
(Size of Sillouhette of Object on Measurement Plane)

D1
(Distance of Measurement Plane from Viewpoint)

D2
(Distance of Object from Viewpoint)

SPORTS AVIATION
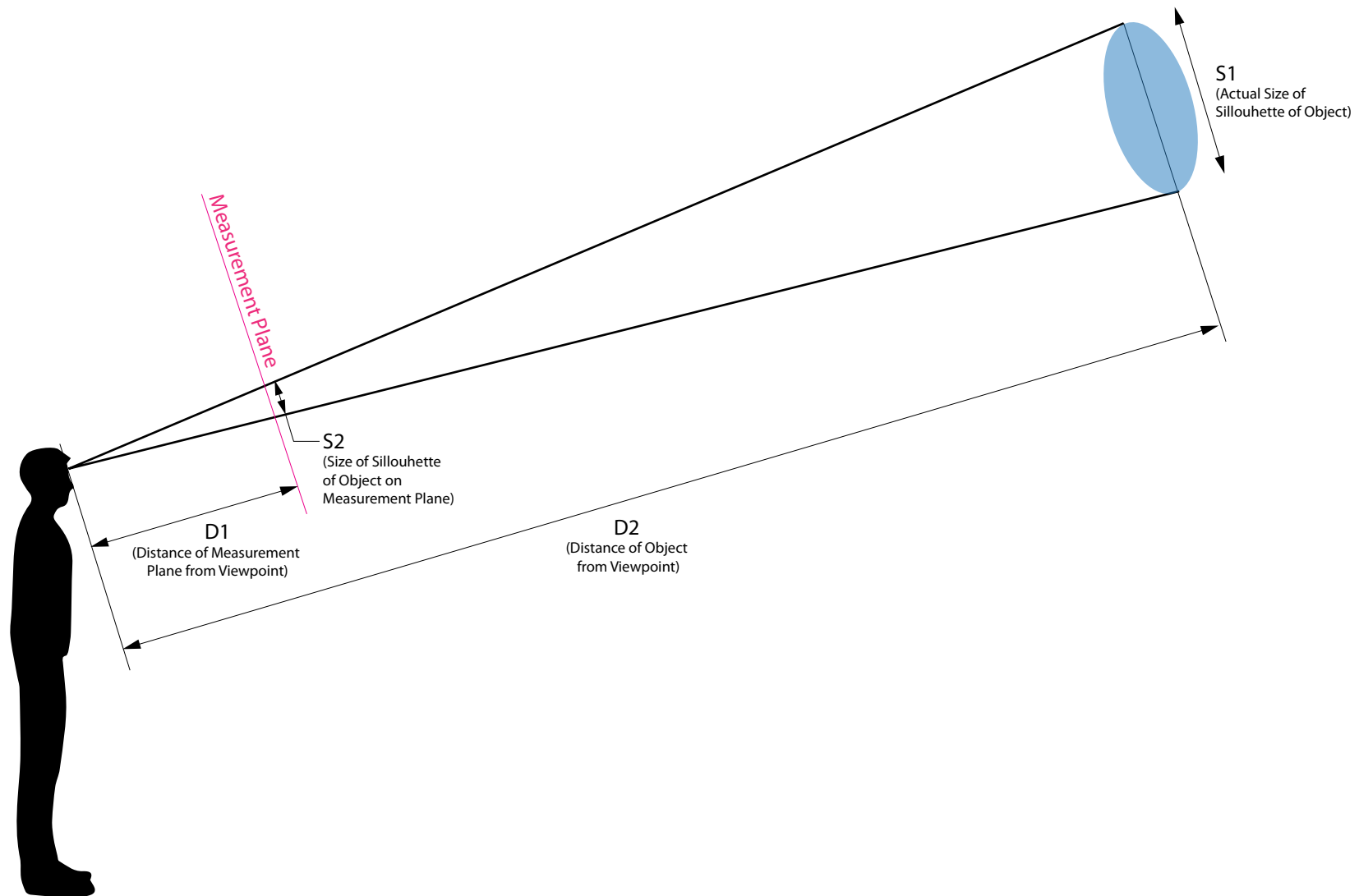FLIGHT COLLEGE
AUSTRALIA

Perceived Size Calculations

- Below shows a 10M object at 4000ft altitude viewed by a person at the horizon

- The perceived size of the object has been calculated as though the person was holding a ruler 30cm in front of them and measuring the size of the object

- This has been calculated with the object at three different positions

- **The largest the object can possibly appear is 2.5mm (directly above viewer) and appears at 0.6mm at a more typical viewing angle of 15 degrees**

4000ft altitude

Position 1
90 Degrees from horizon
(Closest possible position
to viewer at 4000ft)
S1 = 10M
D1 = 30cm (0.3M)
D2 = 1219M (4000ft)
S2 = 2.5mm (.00246M)

Position 2
45 Degrees from horizon
(A viewer looking up at 45 Degrees)
S1 = 10M
D1 = 30cm (0.3M)
D2 = 1724M
S2 = 1.7mm (.00174M)

Position 3
15 Degrees from horizon
(A more typical viewpoint at 15 degrees from horizon)
S1 = 10M
D1 = 30cm (0.3M)
D2 = 4710M
S2 = 0.6mm (.00063M)

90 Degrees
45 Degrees
15 Degrees

Horizon