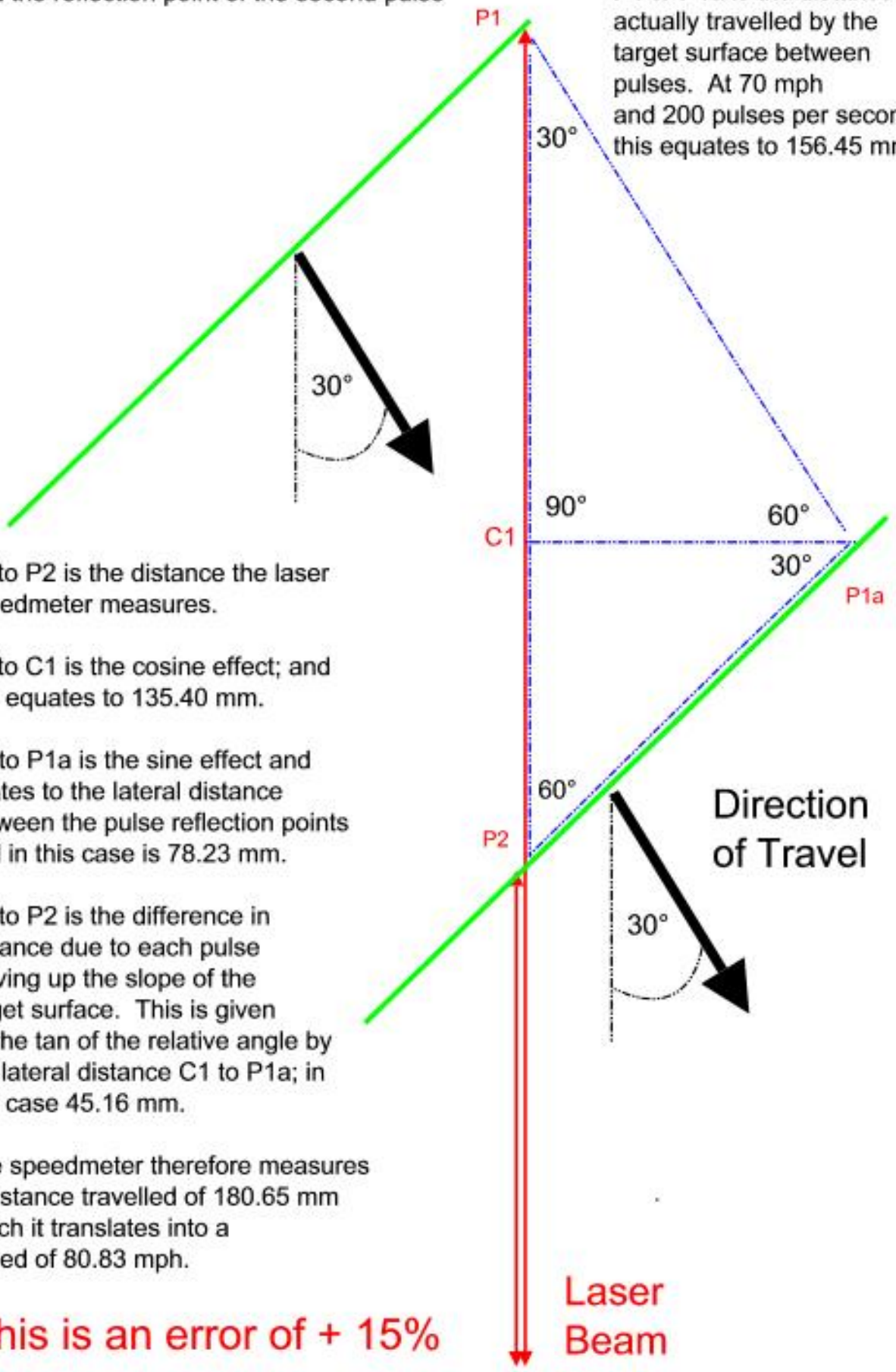
P1 is the reflection point of the first pulse
P2 the reflection point of the second pulse

P1 to P1a is the distance actually travelled by the target surface between pulses. At 70 mph and 200 pulses per second this equates to 156.45 mm.



P1 to P2 is the distance the laser speedmeter measures.

P1 to C1 is the cosine effect; and this equates to 135.40 mm.

C1 to P1a is the sine effect and relates to the lateral distance between the pulse reflection points and in this case is 78.23 mm.

C1 to P2 is the difference in distance due to each pulse moving up the slope of the target surface. This is given by the tan of the relative angle by the lateral distance C1 to P1a; in this case 45.16 mm.

The speedmeter therefore measures a distance travelled of 180.65 mm which it translates into a speed of 80.83 mph.

This is an error of + 15%