Superman - Combat and Perception Speeds

Abstract:

Using mechanics of film, physics and math - I have set out to quantify Superman's on screen feat from season 1 - episode 6 - in which he stops gunfire from assault rifles using his speed.
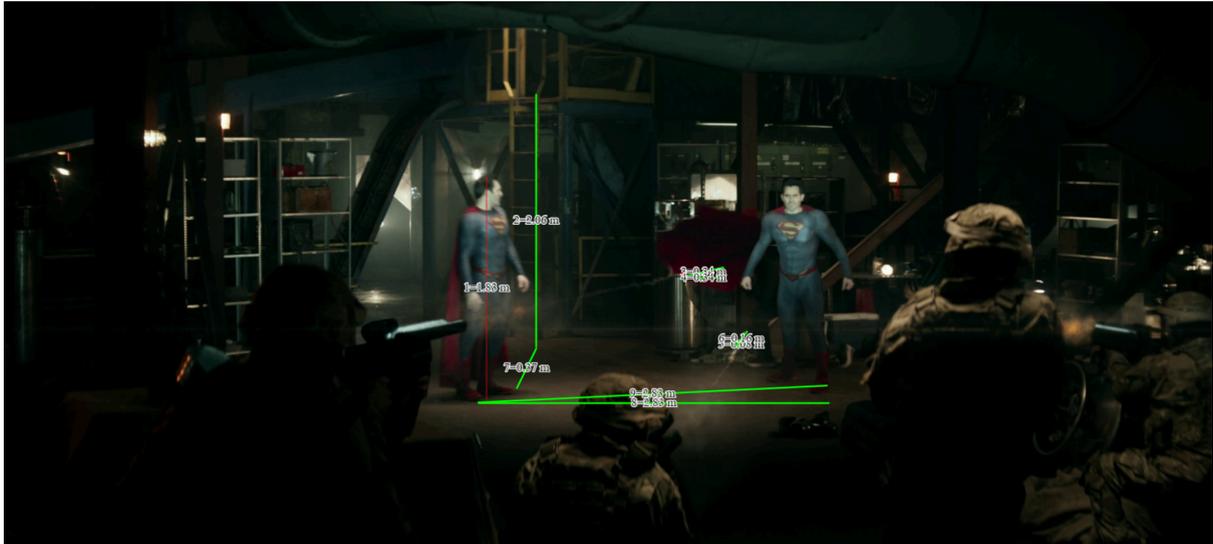
To achieve these results I analysed the film's frame data, calculated distances spatially in scene with reference to the actors height, from which I then acquired velocity and projectile flight times.

Video reference of scene in its entirety

Calculating distances

The distances in scene - (1) superman's height reference - 1.83 m

Full full resolution image -

(2) Ladder - 2.06 m

calculating ladder reference for projectile distances spatially from other frame

30 mm wide angle lens correction for distortion on frame outside reference with actor

30 mm = 3 cm > 0.37 m (37 / 3) = 12.33 cm focal length correction

(2.06 m + 0.12 m) = 2.18 m reference for ladder

(3-4-5-6) projectile distance in motion during speedblitz - furthest 0.34 m > closest 0.16 m

median for focal distortion in frame from composite = 0.25 m

(8-9) superman's distance covered to stop the projectiles - 2.83 m

Projectile distance - (1) ladder height reference (from pixel calc above) - 2.83 m

Full full resolution image -

(2) Projectile distance - 5.90 m

Firearm's in the scene

Real world assumed counterpart - m4a1

I couldn't find any information from official sources about those 4 barrel guns, but the barrel lengths are about that of a remington m4a1 and the bullets outside of kryptonite rounds look like 5.56x45mm

Remington M4a1 Barrel for visual comparison in length

The muzzle velocity of the munition (5.56x45mm) - 2,970 ft/s

(2,970 / 3.281) > 905.21 m/s

How long would it take 1 round with a muzzle velocity of 905.21 m/s to complete a trajectory of 5.90 m?

t = d/v (5.90 m / 905.21 m/s) = 0.006517 s

It would take 0.006517 s in real life

Calculating Velocities

How long does it actually take the projectiles on screen to complete their trajectory?

It takes 2 s 167 ms on screen for the projectiles to complete their trajectory - compared to the real life counterpart of 0.006517 s

Calculating how much faster that scene must of inherently been from chronological differentials

2s 167 ms > 0.006517 s (2.167 / 0.006517) = 332.51

332.51 * 905.21 m/s = 300,991.37 m/s or Mach 877.52

The scene from Superman's perspective was inherently 332.51 times faster than the projectile's velocity - which is equivalent of 300,991.37 m/s or Mach 877.52

How long does it actually take Superman to stop the bullets by moving himself?

It takes 0 s 458 ms on screen for Superman to move himself in front of the bullets

Distance covered by Superman - 2.83 m

Distance covered by Projectiles in that same time - 0.25 m

(2.83 / 0.25) = 11.32 times faster

This part I am unsure on if the methodology is correct or not? Is it 11.32 * real word result or supermans time dilated/perception result?

11.32 * 300,991.37 m/s or 11.32 * 905.21 m/s?

If it's real world results - (11.32 * 905.21) 10,246.76 m/s or Mach 29.87

If it's perception results - (11.32 * 300,991.37) 3,407,222.30 m/s or Mach 9,933.59

Which is the correct method for determining Superman's movement speed in that scene?