



Draw BX perpendicular to AC.

Draw CY perpendicular to AD.

Draw XY.

Angle BCA = $180^\circ - 35^\circ 10' 23'' - 109^\circ 39' 14'' = 35^\circ 10' 23''$, making AB = BC since triangle ABC is isosceles, and angle CBX = $54^\circ 49' 37''$

Angle ACY = $60^\circ 00' 00''$, making triangle XCY equilateral and XC = CY

Angle YCD = $130^\circ 20' 46'' - 60^\circ - 35^\circ 10' 23'' = 35^\circ 10' 23''$, so

triangle BCX is congruent with triangle CDY, BC = CD and therefore triangle BCD is also isosceles.

Angle CDB is then $\frac{1}{2}(180^\circ - 130^\circ 20' 46'') = 24^\circ 49' 37''$