FORMULA 3.654.1

$$\int_0^{\pi/2} \frac{\tan^{\mu+1} x\, \cos^2 x\, dx}{(1+\cos t\, \sin 2x)^2} = \int_0^{\pi/2} \frac{\cot^{\mu+1} x\, \sin^2 x\, dx}{(1+\cos t\, \sin 2x)^2} = \frac{\pi(\mu \sin t \cos \mu t - \cos t \sin \mu t)}{2 \sin \mu\pi\, \sin^3 t}$$

$|\operatorname{Re} \mu| < 1, \quad t^2 < \pi^2$