FORMULA 4.261.14

$$\int_0^\infty \ln^2 x \ \frac{x^{p-1}\,dx}{x^2+2x\cos t+1} = \frac{\pi \sin(1-p)t}{\sin t \sin \pi p}\left\{\pi^2 - t^2 + 2\pi \cot\ \pi p\,[\pi \cot\ \pi p + t\ \cot(1-p)t]\right\}$$

$0 < t < \pi,\ \ 0 < p < 2,\ \ p \neq 1$