abstract In this work, we describe the process of teleportation between Alice in an inertial frame, and Rob who is in uniform acceleration with respect to Alice. The fidelity of the teleportation is reduced due to Davies-Unruh radiation in Rob’s frame. In so far as teleportation is a measure of entanglement, our results suggest that quantum entanglement is degraded in non-inertial frames. We discuss this reduction in fidelity for both bosonic and fermionic resources.