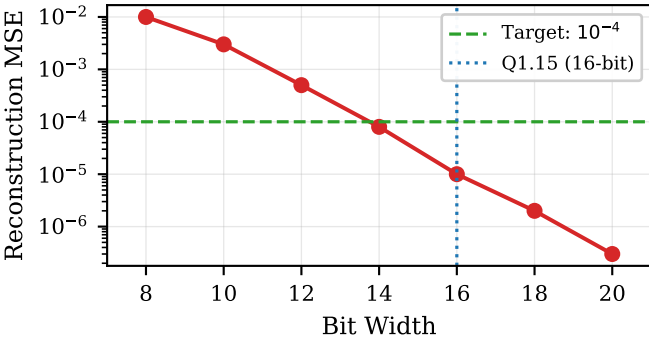**(a) Quantization Error** — **(b) Resource Usage**

(a) Quantization Error: x-axis "Bit Width", y-axis "Reconstruction MSE"; legend — Target: 10^{-4}; Q1.15 (16-bit).

(b) Resource Usage: x-axis "Bit Width", y-axis "LUT Utilization"; legend — iCE40UP5K limit; Q1.15: 3145 LUTs.