

Table 1B | Complex-domain fit-quality metrics corresponding to the parameter sets in Table 1A. Fit performance for Classical, VQE/VQA, and QAOA solutions reported as complex-domain SSE, RMSE, and R^2 , computed over the full frequency grid using the symmetric complex residual $|Z_{fit}(\omega) - Z_{data}(\omega)|$ (with SSE summed over all frequencies) and R^2 evaluated on the concatenated $\Re(Z)$ and $\Im(Z)$ components. These metrics provide a direct, like-for-like comparison of impedance fidelity across solvers under the same model class.

Method	SSE (Ω^2)	RMSE (Ω)	R^2
Classical	370.6	1.676	0.999147
VQE/VQA	370.6	1.676	0.999147
QAOA	1037	2.803	0.997613

*Definitions: $SSE = \sum |Z_{fit} - Z_{data}|^2$ (sum over N frequencies); $RMSE = \sqrt{(SSE/N)}$. R^2 computed on concatenated $\Re(Z)$ and $\Im(Z)$ components.