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(54) Title: MEASUREMENT SCHEME FOR SUPERCONDUCTING QUBITS USING LOW-FREQUENCY MICROWAVE SIGNALS WITHIN A DILUTION REFRIGERATOR

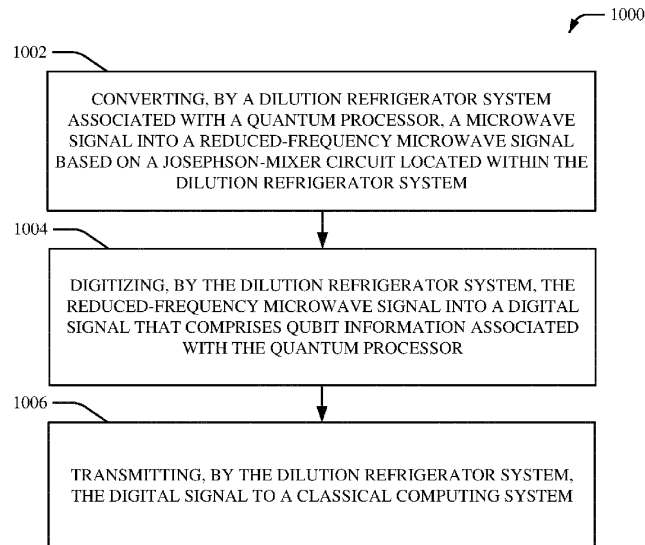


FIG. 10

(57) Abstract: Techniques that facilitate a measurement scheme for superconducting qubits using low-frequency microwave signals within a dilution refrigerator are provided. In one example, a cryogenic microwave system for measuring superconducting qubits using microwave signals includes a dilution refrigerator system for a quantum processor. The dilution refrigerator system converts a microwave signal associated with qubit information into a reduced-frequency microwave signal based on a Josephson-mixer circuit located within the dilution refrigerator system. The reduced-frequency microwave signal includes a frequency below a qubit frequency and a readout resonator frequency associated with the quantum processor.

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