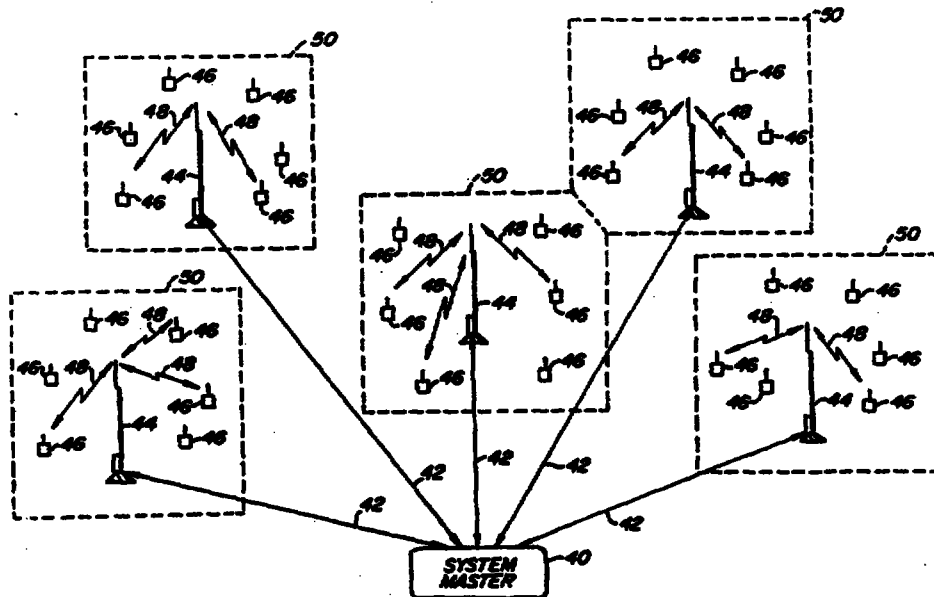


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(54) Title: FREQUENCY SYNCHRONIZED BIDIRECTIONAL RADIO SYSTEM**(57) Abstract**

A bidirectional radio system for low cost high throughput accumulation of data from a large number of sites units (50). Frequency synchronisation is achieved at low cost by transmitting a high accuracy carrier and clock signal at a base station (44), and using receiving circuitry at remote stations (46) to extract the base clock signal and base carrier frequency and a phase lock loop (242, 248, 254, 258) to stabilize the remote station carriers. A burst demodulator (156) at a base station receiver can decode a short remote station response by scaling the response with the phase and amplitude of an initial segment of the response. The burst demodulator (156) may continuously update the decoding threshold based on a comparison of the signal amplitude and the current value of the decoding threshold.