Abstracts

State-Preserving Intermittently Locked Loop (SPILL) Frequency Synthesizer for Portable Radio (Dec. 1989 [T-MTT])

S. Saito, Y. Tarusawa and H. Suzuki. "State-Preserving Intermittently Locked Loop (SPILL) Frequency Synthesizer for Portable Radio (Dec. 1989 [T-MTT])." 1989 Transactions on Microwave Theory and Techniques 37.12 (Dec. 1989 [T-MTT] (1989 Symposium Issue)): 1898-1903.

A novel PLL concept, SPILL, suitable for the intermittent operation of frequency synthesizers used in UHF portable radio sets is proposed. SPILL employs a new digital circuit technique which preserves frequency and phase during power-off periods, in order to perform fast acquisition at the beginning of power-on periods. Both a theoretical analysis and experiments confirm acceptable acquisition performance. A 1.6 GHz SPILL frequency synthesizer achieves an improvement in acquisition time by two orders of magnitude. Applications of SPILL to high-frequency synthesizers in portable radio communication sets are especially effective for reducing power consumption.

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