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(71) Applicant (for all designated States except US):
TROPICAN, INC. [US/US]; Suite 150, 20813 Stevens
Creek Boulevard, Cupertino, CA 95014-5649 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SANDER, Brian
[US/US]; 5504 Perugia Circle, San Jose, CA 95138 (US).
MCCUNE, Earl, W., Jr. [US/US]; 2252 Sutter Avenue,
Santa Clara, CA 95050 (US).

(74) Agent: URE, Michael, J.; Tropican, Inc., Attn: Patent
Counsel, Suite 150, 20813 Stevens Creek Boulevard, Cu-
pertino, CA 95014-5649 (US).

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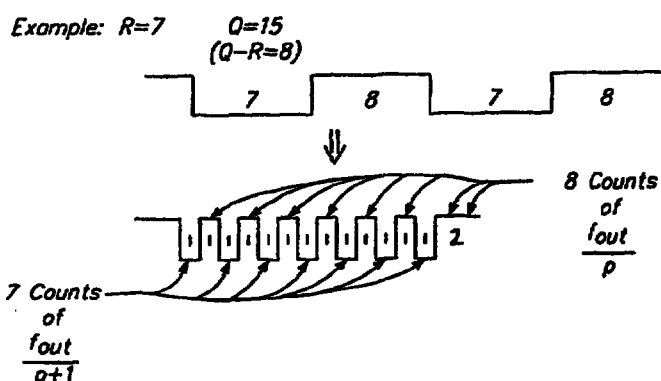
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(54) Title: PLL NOISE SMOOTHING USING DUAL-MODULUS INTERLEAVING



(57) Abstract: The present invention, generally spreading, achieves noise spreading within a PLL using a dual-modulus prescaler by interleaving the division moduli. Within a given cycle, "ones" and "tens" are not all counted consecutively. Instead, ones and tens are interleaved. In one embodiment of the invention, the R count is doubled and the output of the R counter is toggled between high and low states. (The Q counter may remain unmodified). In another embodiment of the invention, ones and tens are interleaved in accordance with a ratio $q:r$. By so interleaving the modulus, the effect is to spread the noise resulting from the output signal of the dual-modulus prescaler over a wider frequency range. The prescaler noise level is greatly reduced, particularly within the frequency band of the reference frequency.



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