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Zhang et al. (43) **Pub. Date: Nov. 3, 2022**(54) **MULTIMODE FREQUENCY MULTIPLIER**(52) **U.S. Cl.**(71) Applicant: **Qualcomm Incorporated**, San Diego,
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1/0483 (2013.01); **H04L 27/362** (2013.01)(72) Inventors: **Yan Zhang**, Irvine, CA (US); **Yunliang**
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(57)

ABSTRACT

This disclosure describes apparatuses, methods, and techniques for implementing a multimode frequency multiplier. In example implementations, an apparatus for generating a frequency includes a multimode frequency multiplier. The multimode frequency multiplier includes a multiphase generator and a reconfigurable frequency multiplier. The multiphase generator is configured to produce a first signal including multiple phase components and having a first frequency. The reconfigurable frequency multiplier is coupled in series with the multiphase generator. The reconfigurable frequency multiplier is configured to produce a second signal based on the first signal and having a second frequency that is a multiple of the first frequency.

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