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Khlat(10) **Pub. No.: US 2022/0368295 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **RADIO FREQUENCY SIGNAL PHASE
CORRECTION IN A DISTRIBUTED POWER
MANAGEMENT CIRCUIT**(71) Applicant: **Qorvo US, Inc.**, Greensboro, NC (US)(72) Inventor: **Nadim Khlat**, Cugnaux (FR)(21) Appl. No.: **17/564,852**(22) Filed: **Dec. 29, 2021****Related U.S. Application Data**

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ABSTRACT

A distributed power management circuit is disclosed. Herein, a phase correction in a radio frequency (RF) signal is performed by a power management integrated circuit (PMIC), a distributed PMC, and a power amplifier circuit. The power amplifier circuit includes a phase shifter circuit configured to phase-shift the RF signal based on a phase correction signal and a power amplifier configured to amplify the phase-shifted RF signal based on a modulated voltage. The distributed PMIC is configured to generate the phase correction signal and the modulated voltage based on a modulated target voltage. The PMIC is configured to generate the modulated target voltage based on a time-variant power envelope of the RF signal. As a result, the modulated voltage and the time-variant power envelope can be better aligned in time and/or phase at the power amplifier circuit to thereby improve efficiency and linearity of the power amplifier.

