



US 20220407462A1

(19) **United States**(12) **Patent Application Publication**
Khlat(10) **Pub. No.: US 2022/0407462 A1**(43) **Pub. Date: Dec. 22, 2022**(54) **WIDEBAND TRANSMISSION CIRCUIT**2200/105 (2013.01); H03F 2200/451
(2013.01); H04B 2001/0425 (2013.01)(71) Applicant: **Qorvo US, Inc.**, Greensboro, NC (US)(72) Inventor: **Nadim Khlat**, Cugnaux (FR)

(57)

ABSTRACT(21) Appl. No.: **17/689,232**(22) Filed: **Mar. 8, 2022****Related U.S. Application Data**

(60) Provisional application No. 63/212,453, filed on Jun. 18, 2021.

Publication Classification(51) **Int. Cl.****H03F 1/02** (2006.01)**H03F 3/24** (2006.01)**H04B 1/04** (2006.01)(52) **U.S. Cl.**CPC **H03F 1/0233** (2013.01); **H03F 3/245**
(2013.01); **H04B 1/04** (2013.01); **H03F**

A wideband transmission circuit is provided. The wideband transmission circuit includes a power amplifier circuit(s) and an envelope tracking (ET) integrated circuit (ETIC). The ETIC is configured to generate a modulated voltage based on a modulated target voltage. The power amplifier circuit(s) amplifies a radio frequency (RF) signal(s) based on the modulated voltage and provides the amplified RF signal(s) to a coupled RF front-end circuit. In embodiments disclosed herein, the ETIC is configured to cause the modulated target voltage to be equalized by a real equalization filter to thereby compensate for a complex voltage distortion filter resulting from a coupling between the power amplifier circuit(s) and the RF front-end circuit. As a result, it is possible to reduce undesired instantaneous excessive compression and/or spectrum regrowth resulting from the complex voltage distortion filter to thereby improve efficiency and linearity of the power amplifier circuit(s).

