

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0214082 A1

Jun. 27, 2024 (43) **Pub. Date:**

(54) RADIO FREQUENCY DOMAIN CALIBRATION SYSTEM AND METHOD FOR RADIO FREQUENCY CIRCUIT UNITS

(71) Applicant: SOUTHEAST UNIVERSITY, Nanjing (CN)

Inventor: Fengyi HUANG, Nanjing (CN) (72)

Assignee: SOUTHEAST UNIVERSITY, Nanjing (73)

(CN)

(21)Appl. No.: 18/565,533

(22) PCT Filed: Dec. 5, 2022

(86) PCT No.: PCT/CN2022/136570

§ 371 (c)(1),

(2) Date: Nov. 30, 2023

(30)Foreign Application Priority Data

Mar. 28, 2022 (CN) 202210310816.9

Publication Classification

(51) Int. Cl. H04B 17/14 (2006.01)H04B 1/04 (2006.01)H04B 17/21 (2006.01) (52) U.S. Cl. CPC H04B 17/14 (2015.01); H04B 1/0475 (2013.01); **H04B** 17/21 (2015.01)

(57)ABSTRACT

A radio frequency domain calibration system and method for radio frequency circuit units is provided. The system regulates and calibrates radio frequency integrated circuit devices, circuit modules and transceiver circuit systems including circuit components in the radio frequency domain through calibration units. The calibration unit includes a calibration control unit and a calibration regulation unit, where the calibration control unit generates a calibration control signal, and drives the calibration regulation unit to perform programmable, adaptive, and real-time regulation on the circuit structure, geometric scale, and working parameters of the radio frequency circuit unit, so that the radio frequency circuit unit works in a desired condition with optimized performances. Compared with existing digital domain calibration systems, the radio frequency domain calibration system has smaller chip area, lower cost, and higher regulation flexibility and module configuration flexibility.

