US 20220407490A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0407490 A1**

Park et al. (43) **Pub. Date: Dec. 22, 2022**

(54) **WIDEBAND SIGNAL ATTENUATOR**

(71) Applicant: **MEDIATEK Singapore Pte. Ltd.**, Singapore (SG)

(72) Inventors: **Henry Arnold Park**, San Jose, CA (US); **Tamer Mohammed Ali**, San Jose, CA (US)

(73) Assignee: **MEDIATEK Singapore Pte. Ltd.**, Singapore (SG)

(21) Appl. No.: **17/744,163**

(22) Filed: **May 13, 2022**

Related U.S. Application Data

(60) Provisional application No. 63/213,305, filed on Jun. 22, 2021.

Publication Classification

(51) **Int. Cl.**

H03H 7/24	(2006.01)
H03H 11/24	(2006.01)
H03G 1/00	(2006.01)
H03G 3/30	(2006.01)

(52) **U.S. Cl.**

CPC ***H03H 7/24*** (2013.01); ***H03H 11/245*** (2013.01); ***H03G 1/007*** (2013.01); ***H03G 3/30*** (2013.01)

(57) **ABSTRACT**

Disclosed herein are embodiments of a wide bandwidth attenuator circuit having a tunable gain and tunable input impedance. In some embodiments, the wideband attenuator circuit comprises a serial capacitor shunted to ground by a plurality of circuit slices that are connected in parallel and switchably coupled to the output node of the attenuator. Each circuit slice has a tunable resistor that can be set to a conductive state ("enabled") or a high impedance state ("disabled") The number of enabled circuit slices that are connected in parallel may be used to program the attenuator gain and the attenuator impedance.