



US 20220352866A1

(19) **United States**(12) **Patent Application Publication**
GRANADO et al.(10) **Pub. No.: US 2022/0352866 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **RF BAW RESONATOR FILTER
ARCHITECTURE FOR 6.5GHZ WI-FI 6E
COEXISTENCE AND OTHER
ULTRA-WIDEBAND APPLICATIONS****H03H 9/56** (2006.01)**H03H 3/02** (2006.01)(52) **U.S. Cl.****CPC** **H03H 9/0014** (2013.01); **H03H 9/02031**
(2013.01); **H03H 9/0523** (2013.01); **H03H**
9/0533 (2013.01); **H03H 9/105** (2013.01);
H03H 9/173 (2013.01); **H03H 9/175**
(2013.01); **H03H 9/176** (2013.01); **H03H**
9/542 (2013.01); **H03H 9/562** (2013.01);
H03H 9/564 (2013.01); **H03H 9/568**
(2013.01); **H03H 3/02** (2013.01); **H03H**
2003/025 (2013.01); **H03H 2003/021**
(2013.01)(71) Applicant: **Akoustis, Inc.**, Huntersville, NC (US)(72) Inventors: **Guillermo Moreno GRANADO**,
Huntersville, NC (US); **Rohan W.**
HOULDEN, Oak Ridge, NC (US);
David M. AICHELE, Huntersville, NC
(US); **Jeffrey B. SHEALY**, Davidson,
NC (US)(21) Appl. No.: **17/856,917**(22) Filed: **Jul. 1, 2022****Related U.S. Application Data**(63) Continuation of application No. 16/995,598, filed on
Aug. 17, 2020.**Publication Classification**(51) **Int. Cl.****H03H 9/00** (2006.01)**H03H 9/02** (2006.01)**H03H 9/05** (2006.01)**H03H 9/10** (2006.01)**H03H 9/17** (2006.01)**H03H 9/54** (2006.01)

(57)

ABSTRACT

A multi-stage matching network filter circuit device. The device comprises bulk acoustic wave (BAW) resonator device having an input node, an output node, and a ground node. A first matching network circuit is coupled to the input node. A second matching network circuit is coupled to the output node. A ground connection network circuit coupled to the ground node. The first or second matching network circuit can include an inductive ladder network including a plurality of series inductors in a series configuration and a plurality of grounded inductors wherein each of the plurality of grounded inductors is coupled to the connection between each connected pair of series inductors. The inductive ladder network can include one or more LC tanks, wherein each of the one or more LC tanks is coupled between a connection between a series inductor and a subsequent series inductor, which is also coupled to a grounded inductor.

