PIEZOELECTRIC FILTER WITH TUNABLE GAIN

Tech ID: 23595 / UC Case 2014-057-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,050,602	08/14/2018	2014-057

BRIEF DESCRIPTION

There is a long-standing problem of how to switch piezoelectric filters when used in switchable filter banks -- such as needed in RF channel-selection.

To address this problem, researchers at UC Berkeley have developed a method and structure for a piezoelectric resonator with tunable transfer function -- i.e. tunable gain. This Berkeley resonator's gain is tunable to many values -- including values that are low enough to consider the device to be "off" relative to the background signal. Accordingly, this approach enables on/off switching of piezoelectric resonators; and it thereby obviates the need for separate low loss switches, which otherwise would be needed in series with piezoelectric resonators to switch them on and off -- adding insertion loss and raising system gain. In addition, this ability to adjust filter gain makes it possible for the resonator to control low power gain in a receiver front-end.

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OTHER INFORMATION

KEYWORDS

wireless, sensors, handsets

CATEGORIZED AS

» **Communications**

» Wireless

» **Computer**

» Hardware

» **Environment**

» Sensing

» **Engineering**

» Engineering

RELATED CASES

2014-057-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Zero-Quiescent Power Transceiver
- High Electromechanical Coupling Disk Resonators
- Micromechanical Frequency Divider
- RF-Powered Micromechanical Clock Generator
- Active Resonator System with Tunable Quality Factor, Frequency, And Impedance

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