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TANIGUCHI et al.(10) **Pub. No.: US 2022/0376675 A1**(43) **Pub. Date: Nov. 24, 2022**(54) **MULTIPLEXER****H03H 9/13** (2006.01)**H03H 9/60** (2006.01)(71) Applicant: **Murata Manufacturing Co., Ltd.**,
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ABSTRACT

When a current flowing in a series circuit including an equivalent resistance, an equivalent inductor, and an equivalent capacitance in an electric equivalent circuit of a specific resonator in each filter is defined as an acoustic path current, under conditions that a phase of an acoustic path current of a first transmission filter at a side of a common terminal at a frequency within a first transmission band is represented as $\theta 1_{Tx}$, a phase of an acoustic path current of the first transmission filter at the side of the common terminal at a frequency within a second transmission band is represented as $\theta 2_{Tx}$, a phase of an acoustic path current of a first reception filter at the side of the common terminal at a frequency within the first transmission band is represented as $\theta 1_{Rx}$, and a phase of an acoustic path current of the first reception filter at the side of the common terminal at a frequency within the second transmission band is represented as $\theta 2_{Rx}$, a multiplexer satisfies a first condition: $|(2 \cdot \theta 1_{Tx} - \theta 2_{Tx}) - (2 \cdot \theta 1_{Rx} - \theta 2_{Rx})| = 180^\circ \pm 90^\circ$, or a second condition: $|(2 \cdot \theta 2_{Tx} - \theta 1_{Tx}) - (2 \cdot \theta 2_{Rx} - \theta 1_{Rx})| = 180^\circ \pm 90^\circ$.

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