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TANIGUCHI et al.(10) **Pub. No.: US 2022/0368314 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **MULTIPLEXER****H03H 9/64** (2006.01)**H03H 9/145** (2006.01)(71) Applicant: **Murata Manufacturing Co., Ltd.**,
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(57)

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 pass band is represented as $\theta 1_{Tx1}$, 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 pass band is represented as $\theta 2_{Tx1}$, a phase of an acoustic path current of a second transmission filter at the side of the common terminal at a frequency within the first pass band is represented as $\theta 1_{Tx2}$, and a phase of an acoustic path current of the second transmission filter at the side of the common terminal at a frequency within the second pass band is represented as $\theta 2_{Tx2}$, a multiplexer satisfies a first condition: $|(2 \cdot \theta 1_{Tx1} - \theta 2_{Tx1}) - (2 \cdot \theta 1_{Tx2} - \theta 2_{Tx2})| = 180^\circ \pm 90^\circ$, or a second condition: $|(2 \cdot \theta 2_{Tx2} - \theta 1_{Tx2}) - (2 \cdot \theta 2_{Tx1} - \theta 1_{Tx1})| = 180^\circ \pm 90^\circ$.

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