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Wu et al.

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(54) **FILTER DEVICE AND EQUIVALENT FILTER CIRCUIT THEREOF**

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

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(58) **Field of Classification Search**

CPC ... **H01P 1/20345; H01P 1/20363; H01P 1/203**

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See application file for complete search history.

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(57) **ABSTRACT**

The invention discloses a filter device. The filter device comprises a substrate, at least one transmission conductor, and a reference conductor having a slotted structure. The substrate is provided at a first surface thereof with the transmission conductor, and provided at a second surface thereof with the reference conductor. The slotted structure comprises a frame portion, a slotted portion, and a hollow portion. The slotted portion surrounds the frame portion, and the hollow portion is formed in the frame portion. At least one impedance unit is configured on the frame portion. The equivalent filter circuit of the filter device is formed between the transmission conductor, the slotted structure, the reference conductor, and the impedance unit. Thereby, the equivalent filter circuit absorbs at least one noise at at least one specific frequency by the impedance unit to avoid the noise reflected to affect the transmission quality of signal.

30 Claims, 25 Drawing Sheets

