Abstracts

Band-Pass Spurline Resonators (Correspondence)

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The spurline resonator, a term coined by Schiffman to denote the particular type of transmission-line resonator shown in Fig. 1, is sometimes useful in the design and construction of transmission-line band-stop filters. Its open-wire-line equivalent (see Fig. 1) shows that it is naturally applicable to band-stop (or low-pass) transmission-line filters. A similar structure, which might be denoted a "band-pass spurline resonator" (to distinguish it from the band-stop type of spurline resonator), is shown in Fig. 2. Note that the main difference in the physical configuration of Fig. 2 from that of Fig. 1 is the grounding of the spurline. The main differences in the open-wire-line equivalent circuit is that the shunt stub is short-circuited at its end rather than open-circuited, and a transformer is required at Port 2. The band-pass spurline resonator may provide for alternative realizations of band-pass filters that have, either totally or in part, open-wire-line equivalent circuits of short-circuited shunt stubs alternating with commensurate length transmission lines. Examples are the parallel-coupled-resonator band-pass filter and the direct-coupled-stub band-pass filter. The transformer may, perhaps, be utilized to beneficially alter the impedance level within the filter. It is expected that the band-pass spurline resonator configuration will be most useful in filters of moderate bandwidth.

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