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6-8 July 2023

Wearable Substrate Integrated Waveguide (SIW) Iris Band Pass Filter (BPF) over Jeans Substrate

S. Moitra; K. Hajra; R. Roy; A. Banerjee; D. Chand; S. Sharangi; A. Alphones

Publication Year: 2023 , Page(s): 1 - 4

Abstract **HTML**

This paper explores the designing technique of body wearable iris band pass filters over substrate integrated waveguide (SIW) by opting jeans as a substrate material with relative permittivity of 2.72, thickness 2mm and dielectric loss tangent of 0.002. Simple microstrip to SIW feeding technique is used for impedance transition. A number of iris configurations are studied and presented with simula... Show More

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Contents

Based on present demand, evaluation of SIW components (antennas, filters, couplers, power dividers etc.) draw attention in the field of wireless communication for designing compact circuits and create a vast scope for microwave and millimeter wave design engineers. Substrate integrated waveguide (SIW) leads over the transmission parameters of conventional rectangular waveguide in this aspect [1]-[3] along with other manifold advantages like easy fabrication process, circuit integration, high power handling, low cost and high quality factor. Basic SIW structure realized on a dielectric substrate is shown in Fig. 1 where p is the pitch or center to center gap between successive vias, t-thickness of dielectric substrate, d-diameter of each vias and a_s is equivalent width of SIW [2]. The SIW planar structure is compatible with different feeding techniques like coaxial feed, inset feed, microstrip feed etc. In this paper simple microstrip to SIW transition feeding technique has been used.

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