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Design of Wilkinson power divider at 28 GHz for 5G applications

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Abstract

A power divider plays a significant function in antenna's feeding network. Many types of power divider exist yet there are only a few existing studies of Wilkinson power dividers at high

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frequencies (28 GHz) for 5G communications systems. This paper presents a tapered 2-way Wilkinson power divider that operates in Malaysia's 5G wireless communication band (28 GHz). CST microwave studio is used to design , simulate, and optimize the tapered 2-way Wilkinson divider . The simulation results show resonance around 23.5-37.9 GHz . The operating frequency of 28 GHz resulted in power division with a 3.2 dB insertion loss and has an isolation of 19.21 dB. The design can be made wideband with equal power division at each output port by adding an extra resistor along the tapered line to reduce output return loss and isolation, as demonstrated in this paper. © 2022 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

5G ; Fabrication; Millimeter waves; Power divider ; Transmission lines

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