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Millimeter-wave wireless links for 5G mobile networks

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ABSTRACT

Microwave photonics and radio-over-fiber (RoF) technologies have been investigated for over 20 years, leading to a substantial stock of know-how which is now about to be exploited in the development of the 5th generation mobile systems (5G). These technologies have proven mature in niche areas such as distribution of highly pure clock signals for radio telescopes, photonic-based coherent radars, and fiber optic sensing, among others. This paper will show niches in where microwave photonics can add value by providing more compact, versatile and efficient system solutions. Furthermore, different efforts in the area of radio-over-fiber for communications will be presented; particularly, remote access units for mobile backhauling or point-to-point wireless links driven by photonic technologies.

Keywords: microwave photonics, millimetre-wave communications, mobile networks, optical communications