

Quasi-Optic Transmitter and Receiver Modules Enabling Next-Generation Ultra-Broadband Wireless Links at Carrier-Wave Frequencies Ranging from 60 to 180 GHz

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Abstract

A wireless link using quasi-optic transmitter and receiver modules is demonstrated, enabling carrier wave frequency selection within various millimeter-wave bands from E-band to D-band without changing the modules. The photonics-based transmitter driven by an optical heterodyne source uses an ultra-wideband PIN photodiode transmitter module. The receiver is composed of zero-bias Schottky barrier diode envelope detector, with a minimum of -30 dBm measured sensitivity leading to a calculated link distance of 15 m. Error-free data transmission also enables real-time HDTV streaming.