

Design of Compact Logarithmically Periodic Antenna Structures for Polarization-Invariant UWB Communication

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Ultra Wideband (UWB) communication systems seem promising in order to establish a new standard for short-range data transmission with enhanced data rates in a frequency range from 3.1-10.6GHz. The antenna design for UWB signal radiation is one of the main challenges, especially when low-cost geometrically small and efficient structures are required, serving as air-interfaces to the UWB transmission channel. Self-complementary antenna structures may be well suited in the design of UWB communication systems providing almost constant antenna parameters in the whole frequency range of operation. Adhering to certain geometrical delimitations, self-complementary, logarithmically periodic planar antennas can be realized as dual polarized antenna elements that may be applied in short-range communication systems with polarization diversity reception.