

“Concept of balanced antennas with load-invariant base impedance using a two element LC-coupler”, pp.117-122

Norbert Peters, Thomas Schmitz, Arash Sadeghfam, Holger Heuermann

Abstract – This paper presents the design methodology and results of a so-called balanced antenna, adapted from a new concept to realize a balun and 90°-coupler, with two symmetrical antennas. The novel matching structure features invariant input-impedance for changing free space conditions and is broad-band matched. Using this circuit, isolators for UMTS radios can be replaced. The novel circuit requires only three SMD elements and two symmetrical antennas. We realized this concept at 1.9 GHz with a linear polarized turnstile antenna, supporting an isotropic pattern, on FR4 substrate and used SMD components. Experimental results verify the validation and the very good performance of the proposed concept.