
EURO-COST

SOURCE: INESC-ID / Instituto Superior Técnico,
University of Lisbon, Portugal

Centre of Technology and Systems, UNINOVA,
Lisbon, Portugal

Influence of user's motion on signal depolarisation in off-body channel

This paper considers the depolarisation effect in body area networks, where the influence of user's dynamics on signal depolarisation in off-body channel is analysed. A simple free-space scenario with the user walking/running in place at a fixed distance from the off-body antenna is simulated, where the motion capture data is used for user's motion. The cross-polarisation discrimination is analysed for the line-of-sight component, considering different placements of the wearable antenna. Additionally, the antenna radiation pattern changes over a motion cycle are analysed. The results show high dependence of the depolarisation effect on the on-body antenna placement and dynamics of the motion. Signal depolarisation is low for the antennas on the torso, waist and head, while it is significant for placements on the wrist, arms, and lower legs. The depolarisation characteristics of the channel are observed to change considerably faster for running than walking motion.

Kenan Turbic, Luis M. Correia, Marko Beko
Rua Alves Redol 9
1000-290 Lisbon, Portugal
Phone: +351 213 100 468
Fax: +351 213 100 472
Email: kenan.turbic@tecnico.ulisboa.pt