

**“Sectorized antennas for CDMA based ad hoc networks at 60 GHz”, pp.228-235**

Alexandre Boe, Laurent Clavier, Rodrigue Okouyi, Nathalie Rolland and Paul Alain Rolland

**Abstract** – We consider the benefits of directive antennas in an ad hoc network in the 60 GHz band. The physical layer is based on DS-CDMA and the multipaths channel is modeled by a Tapped Delay Line. If CDMA ensures the multiple access, it suffers from near far effect. Especially in ad hoc conditions where power control is difficult to implement, some strong nearby interferers frequently inhibit some communications. Sectorized antennas allow a further increase of the spatial diversity inherent to the ad hoc configuration. We compare omnidirectional antennas and sectorized antenna illuminating six sectors. We present the antenna design in order to fully integrate them within any types of objects, including the antenna feeder based on series MEMS microswitches. Their influence on the received useful and interfering powers and on the signal to noise ratio are shown as well as the performance improvement, in terms of bit error rate.