

Title (en)
SPACE-TIME CODED DIFFUSE-IR NETWORKING WITH PHOTON DENSITY WAVES

Title (de)
RAUM-ZEIT-CODIERTE DIFFUS-IR-VERNETZUNG MIT PHOTONENDICHTEWELLEN

Title (fr)
ETABLISSEMENT DE RESEAUX A INFRAROUGE DIFFUS ET A CODAGE SPATIO-TEMPOREL A L'AIDE D'ONDES DE DENSITE PHOTONIQUE

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Abstract (en)
[origin: WO2005048492A1] A network and method of operating the same are provided as well as network components with an additional physical layer concept for IR communications to decrease the disadvantages of fading due to multipath signals. In one aspect Photon Density Waves (PDW) on the original IR signal are used. In a second aspect IR sources and detectors in array form with separately addressable components are used. In a third aspect space-time coding to increase the data communication rate by taking advantage of the multipath is used. In a fourth aspect the space-time coding is optimized adaptively for a given indoor environment by engineering the spectral composition of the PDW components. In a fifth aspect a set of tools to optimize the indoor channel utilization for any given environment is provided. These tools make use of moving the central frequency of modulation from the IR frequency to the PDW frequency. In a sixth aspect PDW excited IR arrays are implemented with space-time coding.

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