

Channel capacity of high-speed powerline communication in vehicles

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=118596&lokasi=lokal>

Abstrak

Powerline Communication (PLC) Systems intends to use the mains network in vehicles for high-speed data transmission. Carrier frequencies in the range of MHz are required to establish data rates of some megabits per second.

In this paper, typical reference channels extracted from channel measurements are presented and computation results of

their capacities according to Shannon's theorem are presented. Furthermore, the effect of limitations of frequency

range and power spectral density of transmitted signal on achievable capacity is investigated. This paper outlines an

assessment for theoretical channel capacity and achievable data rates of vehicular PLC transmission schemes. Finally,

EMC (Electromagnetics Compatibility) constraint according to CISPR 25 (Comite International Special des Perturbations Radioelectrique – The International Special Committee on Radio Interference) is deeply considered.