ABSTRACT

Power Line Communication (PLC) is data transmission system by exploiting power cable as transmission media. Elementary principle from this technology is data signals hypodermic into electricity channel at intermediate frequency 1 - 30 MHz. This technology emerges because of the quickly developed telecommunication technology that forces the operators to look for other alternative in giving amenity of communications access to its customer.

In practice, to develop PLC system for data or voice transmission with high speed is enough difficult. This thing is caused by that PLC channel do not friendly channel, because it have high level noise characteristic which can make the performance of the channel down, so that it required a method or technique that capable to give solution of this problem, that is "aplicate of *Reed-Solomon Coding* Channel in *MIMO* system for *PLC* channel".

This final work do about simulation and analyzing to reduce the noise level which happen at PLC channel with application of Reed-Solomon Coding channel in MIMO system for PLC channel and compare without the application of Reed-Solomon coding channel in MIMO sytem for PLC channel.

At this final task the performance of PLC system by using MIMO with Reed-Solomon Coding and compare with MIMO without Reed-Solomon Coding application and the result of the test get that the performance of MIMO with Reed-Solomon Coding application is better than MIMO without Reed-Solomon Coding application, it seems on picture 4.6. From the result of simulation, at frequency 25 MHz, it has proven that PLC without MIMO is better than PLC with MIMO that is reaching BER $10^{-0,6}$ at SNR 6 dB. But after use Ntaps, the channel performance get better, this test show that the multipath also influence the channel performance.

Kata kunci : *PLC, MIMO, BER, Reed-Solomon coding.*