

ABSTRACT

Broadband PLC is a technology that carries data on the power line network as media transmission use operating frequency up to 1 MHz. Broadband PLC allows relatively high-speed data rate that can be used to transfer video signal. But there is a large enough noise as the characteristics PLC channel. Therefore, to supply the data rate and high bandwidth necessary to use operating frequency up to 30MHz. Power line network is not designed for transfer of information, therefore the video signal transfer on communication needed a PLC Coupling and HPF filter.

Further in this final project receiver system is designed with wide bandwidth and resistant to noise. Receiver system consists of 4 blocks: filter block, coupling block, power amplifier block and demodulator block. Filter characteristics withstand 50 Hz power signal and forward the information signal, the coupling has the characteristics of wide bandwidth (up to 1 MHz). The power amplifier must have the characteristics of low noise so that the signal is not damaged when in brace for display on the receiver.

The results of this final project is the design and realization of video receiver over broadband PLC channels on frequency of 10 MHz - 14 MHz. the performance Testing and results of measurable feasibility are, BPF filter has working on frequency 0.86 MHz - 35 MHz with a bandwidth of 34.2 MHz HPF filters have cut-off frequency 8.7 MHz, and attenuation -4.68 dB. The power amplifier has a power gain from 17:07 dB - 23:16 dB, with power efficiency 0:33% - 9%. Coupling attenuation is -33.97 dB. Demodulator output is 2.18 Vpp. The measurement results indicate the signal has been successfully received and demodulated back. This research has further development opportunities for receiver video on broadband PLC channels to obtain maximum results.

Key Word: broadband PLC, receiver, video analog, bandwidth, noise