ABSTRACT

The development of interactive services application via Hybrid Fiber Coax (HFC), like telephony, internet access, and high speed data services have already need two way transmission. Bandwidth between 5-40 MHz is allocated for upstream signal of the interactive services. This frequency spectrum contain high level noise caused by the narrowband interference.

Multicarrier modulation system is used to increase the transmission ability in media which have a limit bandwidth. This system offers an interest methode for digital transmission in a channel contains distorsion, multiple reflection, and narrowband interference.

In this final task, will be shown a multicarrier modulation using wavelet transformation that can increase the transmission capacity so the transmission efficiency will be higher, BER performance, and the frequency spectrum isolation. The technical princip of the DWMT modulator is carrying a data block with high rates contain video, high speed data, or many telephone line which is multiplex using TDM, using multiple carrier where the subcarrier is constellated using 2^N-QAM. Here, the wavelet transformation algorithm have a role to separate the data block and deliver it using many subcarrier. In the modulator, the signal from the subcarrier is collected again to be a data block like before.

At the last, it will be shown how DWMT modulation can increase BER performance and spectrum isolation that is better than other conventional multicarrier modulation technique.