SUMMARY

ANALISA ALOKASI BIT PADA MODULASI DMT DENGAN KODE LDPC

THE ANALYSE OF ALLOCATION BIT ON DMT MODULATION WITH LDPC CODE

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Subject : Komunikasi digital

Keyword : : DMT;LDPC;alokasi bit

Description :

Descreete Multi Tone (DMT) adalah teknik modulasi yang digunakan pada sistem Asymetric Digital Subscriber Line (ADSL). DMT merupakan jenis modulasi multicarrier dimana bandwidth yang besar akan dibagi-bagi menjadi beberapa subcarier yang lebih kecil. Tiap-tiap subcarrier akan melakukan modulasi jenis QAM terhadap data yang akan dikirimkan dimana level QAM yang digunakan sesuai dengan SNR subcarrier tersebut. Karena itu, SNR secara tidak langsung mempengaruhi jumlah bit yang bisa dibawa tiap simbol QAM. Kemempuan tiap subcarrier untuk membawa sejumlah bit tiap simbol pada modulasinya disebut alokasi bit.
Pada tugas akhir ini akan digunakan pengkodean kanal yang memiliki unjuk kerja yang sangat bagus, yaitu LDPC untuk mengetahui pengaruhnya terhadap alokasi bit. Hasilnya kemudian akan dibandingkan dengan pengkodean kanal jenis Reed-Solomon dan juga sistem tanpa pengkodean kanal.
Berdasarkan hasil simulasi, unjuk kerja LDPC mampu mengungguli Reed-Solomon. Hal ini terlihat dengan adanya peningkatan level QAM yang juga berarti penambahan alokasi bit pada SNR yang sama jika dibandingkan Reed-Solomon maupun sistem tanpa pengkodean kanal. Pada SNR 20 dB, LDPC mampu membawa 10 bit tiap simbolnya, sedangkan Reed-Solomon hanya mampu membawa 6 bit tiap simbolnya dan sistem tanpa pengkodean kanal hanya 4 bit tiap simbolnya. Pada SNR 25 dB, LDPC mampu membawa 10 bit tiap simbolnya, sedangkan Reed-Solomon hanya mampu membawa 8 bit tiap simbolnya dan sistem tanpa pengkodean kanal hanya 6 bit tiap simbolnya . Pada SNR 30 dB, LDPC mampu membawa 10 bit tiap simbolnya, sedangkan Reed-Solomon hanya mampu membawa 10 bit tiap simbolnya dan sistem tanpa pengkodean kanal hanya 8 bit tiap simbolnya .

Description Alt:

Descreete Multi Tone (DMT) is modulation technique that is used in Asymetric Digital Subscriber Line (ADSL) system. DMT is kind of multicarrier modulation where a big bandwidth is divided into several subcarrier. Every subcarrier will modulate the transmitted data into QAM, where the level of QAM is match with the SNR of the subcarrier. Therefor, the SNR is effect indirectly to the number of bit in every QAM symbol. The abilty of subcarriers to bring the number of bit in every symbol on its modulation is called bit allocation.
In this final project, a good performance channel encoding will used, namely LDPC to find out the effect to the allocation bit. The result then will be compared with Reed-Solomon channel encoding and also with system that donâ€™t use channel encoding.
Based on the result of simulation, the performance of LDPC is better than Reed-Solomon. This is indicated by the increasing of QAM level and moreover also increase the bit allocation at the same SNR if is compared to Reed-Solomon or system without channel encoder. At SNR 20 dB, LDPC can carry 10 bits every QAM symbol, Reed-Solomon only carry 6 bits and system without channel encoder only 4 bits every QAM symbol. At SNR 25 dB, LDPC still carry 10s bit every QAM symbol, Reed-Solomon only carry 8 bits and system without channel encoder only 6s bit every QAM symbol. At SNR 30 dB, LDPC can carry 10 bits every QAM symbol, Reed-Solomon carry 8 bits and system without channel encoder only 8 bits every QAM symbol.

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Thank You,

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