

CMPT 434 ~ ASSIGNMENT 1

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2) NRZ: A bandwidth of $B/2$ Hz is required to achieve B bits per second. This is due to signals possibly cycling every 2 ~~bits~~ ~~cycles~~ bits

MLT-3: A bandwidth of $B/4$ Hz is required to achieve B bits per second. This is due to the signals requiring 4 bits to cycle.

Manchester: A bandwidth of B Hz is required as Manchester requires $2 \times$ the rate of NRZ to include the clock signal.

b) 10 signals @ 4000 Hz	= 40,000 Hz
9 guard bands @ 400 Hz	= 3600 Hz
total bandwidth	= 43,600 Hz