Note that the information listed below is for reference only and may not be comprehensively listed.

Formulae and Information

Formulae

$SNR_{dB} = 10 \log_{10} SNR$

$SNR_Q = 6n_b - 1.25$

Bit rate $= f_s \times n_b$

$n_b = \log_2 L$

$C = B \log_2 (1 + SNR)$

$C = 2H \log_2 L$

Logarithmic Identities

General: $y = \log_b x$ and $b^y = x$

Product: $\log_b xy = \log_b x + \log_b y$

Quotient: $\log_b \frac{x}{y} = \log_b x - \log_b y$

Power: $\log_b (x^y) = y \log_b x$

Change of base: $\log_b a = \frac{\log_{10} a}{\log_{10} b}$ (May use any base, base 10 is arbitrarily chosen here)

Metric Prefix

pico	p	10^{-12}		**tera**	T	10^{12}
nano	n	10^{-9}	← $10^0 = 1$ →	**giga**	G	10^9
micro	μ	10^{-6}		**mega**	M	10^6
milli	m	10^{-3}		**kilo**	k	10^3

Information

Propagation speed of electromagnetic signals in free space: 3 x 10^8 m/s
Propagation speed of electromagnetic signals in guided media: 2 x 10^8 m/s