WIRELESS APPLICATIONS, CORP.
Connecting Wireless...

RELATIONSHIP BETWEEN Eb/ No AND S/ N

$Eb = S/R = (E/t) / (B/t)$

Where Eb is the Energy per Bit
S is the Signal Power
R is the Bit Rate

$No = N/W$

Where No is the Noise Spectral Density
N is the Noise Power
B is the Bandwidth

Hence,

$Eb/No = (S/R)/(N/W) = (S/R) \times (W/N)$

And therefore,

$Eb/No = (S/N) \times (W/R)$

Where (S/N) is the Signal to Noise Ratio
(W/R) is the Processing Gain
Eb/ No is the ratio of energy per bit to the noise power spectral density. EB/ No is the measure of signal to noise ratio for a digital communication system. It is measured at the input to the receiver and is used as the basic measure of how strong the signal is.

Reference:
1. CDMA Theory and Nortel Networks Product Design and Function, Student Guide, July 2000.
2. http://www.sss-mag.com/ebn0.html

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