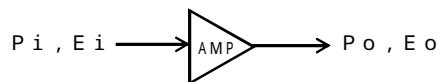


# デシベルについての資料

デシベル (増幅)	電力 (W)		電界強度 (V/m)	
	$10 \log(P_o/P_i)$	何倍?	$20 \log(E_o/E_i)$	何倍?
0 dB	$10 \log 10^0$	1	$20 \log 10^0$	1
10 dB	$10 \log 10^1$	10	$20 \log 10^{1/2}$	3.16
20 dB	$10 \log 10^2$	100	$20 \log 10^{2/2}$	10
30 dB	$10 \log 10^3$	1,000	$20 \log 10^{3/2}$	31.6
40 dB	$10 \log 10^4$	10,000	$20 \log 10^{4/2}$	100
50 dB	$10 \log 10^5$	100,000	$20 \log 10^{5/2}$	316
60 dB	$10 \log 10^6$	1,000,000	$20 \log 10^{6/2}$	1,000
70 dB	$10 \log 10^7$	10,000,000	$20 \log 10^{7/2}$	3,162
80 dB	$10 \log 10^8$	100,000,000	$20 \log 10^{8/2}$	10,000
90 dB	$10 \log 10^9$	1,000,000,000	$20 \log 10^{9/2}$	31,623
100 dB	$10 \log 10^{10}$	10,000,000,000	$20 \log 10^{10/2}$	100,000



増幅の場合:  $P_o/P_i = E_o/E_i = A$ 倍

デシベル (減衰)	電力 (W)		電界強度 (V/m)	
	$10 \log(P_o/P_i)$	何倍?	$20 \log(E_o/E_i)$	何倍?
0 dB	$10 \log 10$	1	$20 \log 10^0$	1
-10 dB	$10 \log 10^{-1}$	0.1	$20 \log 10^{-1/2}$	0.3
-20 dB	$10 \log 10^{-2}$	0.01	$20 \log 10^{-2/2}$	0.1
-30 dB	$10 \log 10^{-3}$	0.001	$20 \log 10^{-3/2}$	0.03
-40 dB	$10 \log 10^{-4}$	0.0001	$20 \log 10^{-4/2}$	0.01
-50 dB	$10 \log 10^{-5}$	0.00001	$20 \log 10^{-5/2}$	0.003
-60 dB	$10 \log 10^{-6}$	0.000001	$20 \log 10^{-6/2}$	0.001
-70 dB	$10 \log 10^{-7}$	0.0000001	$20 \log 10^{-7/2}$	0.0003
-80 dB	$10 \log 10^{-8}$	0.00000001	$20 \log 10^{-8/2}$	0.0001
-90 dB	$10 \log 10^{-9}$	0.000000001	$20 \log 10^{-9/2}$	0.00003
-100 dB	$10 \log 10^{-10}$	0.0000000001	$20 \log 10^{-10/2}$	0.00001



減衰の場合:  $P_o/P_i = E_o/E_i = 1/A$ 倍 =  $A^{-1}$ 倍