

## 典型转换公式

### 电压

dBμV to Volts	$V = 10^{((dB\mu V - 120) / 20)}$
Volts to dBμV	$dB\mu V = 20 \log(V) + 120$
dBV to Volts	$V = 10^{(dBV / 20)}$
Volts to dBV	$dBV = 20 \log(V)$
dBV to dBμV	$dB\mu V = dBV + 120$
dBμV to dBV	$dBV = dB\mu V - 120$

### 电流

dBμA to uA	$\mu A = 10^{(dB\mu A / 20)}$
μA to dBμA	$dB\mu A = 20 \log(\mu A)$
dBA to A	$A = 10^{(dBA / 20)}$
A to dBA	$dBA = 20 \log(A)$
dBA to dBμA	$dB\mu A = dBA + 120$
dBμA to dBA	$dBA = dB\mu A - 120$

### 功率

dBm to Watts	$W = 10^{((dBm - 30) / 10)}$
Watts to dBm	$dBm = 10 \log(W) + 30$
dBW to Watts	$W = 10^{(dBW / 10)}$
Watts to dBW	$dBW = 10 \log(W)$
dBW to dBm	$dBm = dBW + 30$
dBm to dBW	$dBW = dBm - 30$

### 单位转换

dBm to dBμV	$dB\mu V = dBm + 107 \quad (50\Omega)$ $dB\mu V = dBm + 10 \log(Z) + 90$
dBμV to dBm	$dBm = dB\mu V - 107 \quad (50\Omega)$ $dBm = dB\mu V - 10 \log(Z) - 90$
dBm to dBμA	$dB\mu A = dBm + 73 \quad (50\Omega)$ $dB\mu A = dBm - 10 \log(Z) + 90$
dBμA to dBm	$dBm = dB\mu A - 73 \quad (50\Omega)$ $dBm = dB\mu A + 10 \log(Z) - 90$
dBμA to dBμV	$dB\mu V = dB\mu A + 34 \quad (50\Omega)$ $dB\mu V = dB\mu A + 20 \log(Z)$
dBμV to dBμA	$dB\mu A = dB\mu V - 34 \quad (50\Omega)$ $dB\mu A = dB\mu V - 20 \log(Z)$

### 场强和功率密度

dBμV/m to V/m	$V/m = 10^{(((dB\mu V/m) - 120) / 20)}$
V/m to dBμV/m	$dB\mu V/m = 20 \log(V/m) + 120$
dBμV/m to dBmW/m <sup>2</sup>	$dBmW/m^2 = dB\mu V/m - 115.8$
dBmW/m <sup>2</sup> to dBμV/m	$dB\mu V/m = dBmW/m^2 + 115.8$
dBμV/m to dBμA/m	$dB\mu A/m = dB\mu V/m - 51.5$
dBμA/m to dBμV/m	$dB\mu V/m = dB\mu A + 51.5$
dBμA/m to dBpT	$dBpT = dB\mu A/m + 2$
dBpT to dBμA/m	$dB\mu A/m = dBpT - 2$
W/m <sup>2</sup> to V/m	$V/m = \text{SQRT}(W/m^2 * 377)$
V/m to W/m <sup>2</sup>	$W/m^2 = (V/m)^2 / 377$
μT to A/m	$A/m = \mu T / 1.25$
A/m to μT	$\mu T = 1.25 * A/m$

### 电场天线

Correction Factor	$dB\mu V/m = dB\mu V + AF$
Field Strength	$V/m = \sqrt{\frac{30 * \text{watts} * \text{Gain}_{\text{numeric}}}{\text{meters}}}$
Required Power	$\text{Watts} = \frac{(V/m * \text{meters})^2}{30 * \text{Gain}_{\text{numeric}}}$

### 环形天线

Correction Factors	$dB\mu A/m = dB\mu V + AF$
Assumed E-field for shielded loops	$dB\mu V/m = dB\mu A/m + 51.5$
	$dBpT = dB\mu V + dBpT/\mu V$

### 电流探头

Correction Factor	$dB\mu A = dB\mu V - dB_{(ohm)}$
Power needed for injection probe given voltage(V) into 50Ω load and Probe Insertion Loss (I <sub>L</sub> )	$\text{Watts} = 10^{((I_L + 10 \log(V^2/50))/10)}$