



# SHF Communication Technologies AG,

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## Conversion of dBm to mW, $V_{eff}$ , $V_p$ and $V_{pp}$ :

$$P/dBm = 10 \log_{10} P/1mW \quad \Leftrightarrow \quad P/mW = 10^{\frac{P/dBm}{10}}$$

$$P = V_{eff}^2 / R \quad \Leftrightarrow \quad V_{eff} = \sqrt{P R}$$

For sinusoidal signals:  $V_{peak} = \sqrt{2} V_{eff}$  and  $V_{pp} = 2 V_{peak}$

For sinusoidal signals and for  $R = 50 \Omega$  the following table can be used:

P [dBm]	P [mW]	Veff [V]	Vp [V]	Vpp [V]	P [dBm]	P [mW]	Veff [V]	Vp [V]	Vpp [V]
<b>-30</b>	<b>0.001</b>	<b>0.007</b>	<b>0.010</b>	<b>0.020</b>	<b>0</b>	<b>1.000</b>	<b>0.224</b>	<b>0.316</b>	<b>0.632</b>
-29	0.001	0.008	0.011	0.022	1	1.259	0.251	0.355	0.710
-28	0.002	0.009	0.013	0.025	2	1.585	0.282	0.398	0.796
-27	0.002	0.010	0.014	0.028	3	1.995	0.316	0.447	0.893
-26	0.003	0.011	0.016	0.032	4	2.512	0.354	0.501	1.002
-25	0.003	0.013	0.018	0.036	5	3.162	0.398	0.562	1.125
-24	0.004	0.014	0.020	0.040	6	3.981	0.446	0.631	1.262
-23	0.005	0.016	0.022	0.045	7	5.012	0.501	0.708	1.416
-22	0.006	0.018	0.025	0.050	8	6.310	0.562	0.794	1.589
-21	0.008	0.020	0.028	0.056	9	7.943	0.630	0.891	1.783
<b>-20</b>	<b>0.010</b>	<b>0.022</b>	<b>0.032</b>	<b>0.063</b>	<b>10</b>	<b>10.000</b>	<b>0.707</b>	<b>1.000</b>	<b>2.000</b>
-19	0.013	0.025	0.035	0.071	11	12.589	0.793	1.122	2.244
-18	0.016	0.028	0.040	0.080	12	15.849	0.890	1.259	2.518
-17	0.020	0.032	0.045	0.089	13	19.953	0.999	1.413	2.825
-16	0.025	0.035	0.050	0.100	14	25.119	1.121	1.585	3.170
-15	0.032	0.040	0.056	0.112	15	31.623	1.257	1.778	3.557
-14	0.040	0.045	0.063	0.126	16	39.811	1.411	1.995	3.991
-13	0.050	0.050	0.071	0.142	17	50.119	1.583	2.239	4.477
-12	0.063	0.056	0.079	0.159	18	63.096	1.776	2.512	5.024
-11	0.079	0.063	0.089	0.178	19	79.433	1.993	2.818	5.637
<b>-10</b>	<b>0.100</b>	<b>0.071</b>	<b>0.100</b>	<b>0.200</b>	<b>20</b>	<b>100.000</b>	<b>2.236</b>	<b>3.162</b>	<b>6.325</b>
-9	0.126	0.079	0.112	0.224	21	125.893	2.509	3.548	7.096
-8	0.158	0.089	0.126	0.252	22	158.489	2.815	3.981	7.962
-7	0.200	0.100	0.141	0.283	23	199.526	3.159	4.467	8.934
-6	0.251	0.112	0.158	0.317	24	251.189	3.544	5.012	10.024
-5	0.316	0.126	0.178	0.356	25	316.228	3.976	5.623	11.227
-4	0.398	0.141	0.200	0.399	26	398.107	4.462	6.310	12.619
-3	0.501	0.158	0.224	0.448	27	501.187	5.006	7.079	14.159
-2	0.631	0.178	0.251	0.502	28	630.957	5.617	7.943	15.887
-1	0.794	0.199	0.282	0.564	29	794.328	6.302	8.913	17.825
<b>0</b>	<b>1.000</b>	<b>0.224</b>	<b>0.316</b>	<b>0.632</b>	<b>30</b>	<b>1000.000</b>	<b>7.071</b>	<b>10.000</b>	<b>20.000</b>