

知 How to convert the signal power unit dBm and mW?

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Problem Description

How to convert the signal power unit dBm and mW?

Solution

The unit dB is a function used to measure the ratio of signal power to other standard values. The abbreviation dB is often easy to compare with other abbreviations that represent ratios. Therefore, dBm is used instead of dB, which represents the ratio of 1mW to the standard reference value.

The calculation formula for conversion between mW and dBm is: **Power (dBm) = 10*log10 (power (mW)/1mW)**

For example, for a signal power of 50mW, the formula converted to dBm is as follows:

$$\text{Power (dBm)} = 10 * \log_{10}(50\text{mW}/1\text{mW}) = 10 * \log_{10}(50) = 10 * 1.7 = 17\text{dBm}$$

Table 1 Conversion table of dBm and mW

dBm	mW	dBm	mW
0	1.0 mW	-	-
1	1.3 mW	26	400mW
2	1.6 mW	27	500mW
3	2.0 mW	28	640mW
4	2.5 mW	29	800mW
5	3.2 mW	30	1.0W
6	4.0 mW	31	1.3W
7	5.0 mW	32	1.6W
8	6.0 mW	33	2.0W
9	8.0 mW	34	2.5W
10	10 mW	35	3.0W
11	13 mW	36	4.0W
12	16 mW	37	5.0W
13	20 mW	38	6.0W
14	25 mW	39	8.0W
15	32 mW	40	10W
16	40 mW	41	13W
17	50 mW	42	16W
18	64 mW	43	20W
19	80 mW	44	25W
20	100 mW	45	32W
21	128 mW	46	40W
22	160 mW	47	50W
23	200 mW	48	64W
24	250 mW	49	80W
25	320 mW	50	100W