

# Determine AM Modulation with an Oscilloscope

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The table below allows you to easily determine the modulation level of an AM transmitter. Connect an RF sample to the input of an oscilloscope and set the peak-to-peak (pk-pk) unmodulated carrier level to occupy two divisions. Then apply modulation and read the peak-to-peak level. Find the nearest number in the scope division column below and read the modulation percentage from the left-most column of the same row.

Modulation (%)	Sideband Power	Scope Divisions
	(dbc) 1	
0	N/A	2.0
1	-46	2.02
2	-40	2.04
10	-26	2.2
20	-20	2.4
30	-16.5	2.6
40	-14	2.8
50	-12	3.0
60	-10.4	3.2
70	-9.1	3.4
80	-7.9	3.6
90	-6.9	3.8
95	-6.5	3.9
100	-6.0	4.0
105	-5.6	4.2
110	-5.2	4.4
115	-4.8	4.6
120	-4.4	4.8
130	-3.7	5.2
140	-3.1	5.6
150	-2.5	6.0
160	-1.9	6.4
170	-1.4	6.8
180	-0.9	7.2
190	-0.4	7.6
200	0.0	8.0



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## Notes:

1 - The power in each sideband relative to the carrier power (dBc), is determined by

$P_{ssb} = 10\log(P_{ssb}/P_c)$ , where  $P_{ssb}$  is the power in a single sideband, and  $P_c$  is the carrier power.

The power in a single sideband is equal to one-half the modulation power.

Modulation power is determined by

$P_m = m^2(P_c)/2$ , where  $P_m$  is the modulation power,  $m$  is the modulation index (percentage expressed as a decimal), and  $P_c$  is the carrier power.