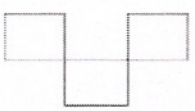
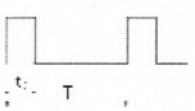
Basic Waveforms

Wave type	Waveform	RMS value	Crest factor	PAPR (dB)
DC		1	1	0.0 dB
Sine wave		$1/\sqrt{2}$ [6]	$\sqrt{2}$	3.01 dB
N superimposed sine waves (same amplitudes, different frequencies)		$\sqrt{\frac{N}{2}}$	$\sqrt{2N}$	$10 \log 2N$ [dB]
Full-wave rectified sine		$1/\sqrt{2}$ [6]	$\sqrt{2}$	3.01 dB
Half-wave rectified sine		$1/2$ [6]	2	6.02 dB
Triangle wave		$1/\sqrt{3}$	$\sqrt{3}$	4.77 dB
Square wave		1	1	0 dB
PWM-Signal V(t) 0.0 V		$\sqrt{t_1/T}$ [6]	$\sqrt{T/t_1}$	$10 \log T/t_1$ [dB]
QPSK		1	1	0 dB[7]
OQPSK				3.3 dB[8]
8VSB				6.5–8.1 dB[9]
64QAM		$\sqrt{3/7}$	$\sqrt{7/3}$	3.7 dB[7]
∞ -QAM		$1/\sqrt{3}$	$\sqrt{3}$	4.8 dB[7]
WCDMA downlink carrier				10.6 dB
Gaussian noise		σ [10][11]	∞ [12][13]	∞ dB

(*) Crest factor:

$$C = \frac{|x|_{peak}}{x_{rms}}$$

(*) Peak-to-average power ratio (PAPR)

$$PAPR = \frac{|x|^2_{peak}}{x^2_{rms}} = C^2$$

$$PAPR_{dB} = 10 \log_{10} C^2$$

(in other words:

$$PAPR = \frac{\text{peak power}}{\text{average power}}$$
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