Mod		RF Bandwidth	Low Frequency Response	Power Efficiency	Noise Performance: Processing Gain	Complexity	Typical Applications
DSB-SC	$x_{\mathrm{DSB-SC}}(t) = x_{\mathrm{bb}}(t)\cos(2\pi t f_c))$	$2B_{bb}$	Good	100%	G_p=1	Moderate: Coherent Low bandwidth demodulation is required. communication	Difference signal in stereo FM
DSB-LC (AM)	$x_{\mathrm{DSB-LC}}(t) = A_c\big(+\mu x_{\mathrm{bb}}(t)\big)\cos(2\pi f_c t)$	$2B_{bb}$	Poor	Poor	$G_P = \frac{\mu^2}{2+\mu^2}$	Minor: Simple modulators and envelope detection.	Broadcast radio
SSB	$x_{\mathrm{SSB}}(t) = A_c x_{\mathrm{bb}}(t)\cos(2\pi f_c t) - A_c \hat{x}_{\mathrm{bb}}(t)\sin(2\pi f_c t))$	B_{bb}	Poor	100%	G_p=1	Major: Phase shift modulators and coherent systems demodulators are required.	Voice communication
VSB	$X_{VSB}(f) = A_c H_v(f)(X_{bb}(f + f_c) + X_{bb}(f - f_c))$	$B_{bb}<B_{RF}<2B_{bb}$	Good	100%	N/A	Major: Symmetric filters and coherent demodulation are required.	Broadcast Digital TV
VSB+ Carrier	$X_{VSB+C}(f) = H_v(f)(X_{bb}(f + f_c) + X_{bb}(f - f_c)) + A_c\delta(f + f_c) + A_c\delta(f - f_c)$	$B_{bb}<B_{RF}<2B_{bb}$	Poor	Poor	N/A	Moderate: Symmetric Carrier filter required, but envelope detection can be used.	Legacy TV
FM	$x_{\mathrm{FM}}(t) = A_c\cos\big(2\pi f_c t + 2\pi k_f \int x_{\mathrm{bb}}(\tau)\,d\tau\big) = A_c\cos(2\pi f_c t) + \beta\sin(2\pi f_m t))$	$2B_{bb}(1+\beta)$	Good	Good	$G_p=(3/2)\beta^2$	Moderate: Simple phase-applicable lock loop demodulators can be used.	High-fidelity FM broadcast radio
	Assumptions: AM: $\lvert x_{\mathrm{bb}}(\tau)\rvert_{peak}$=1 FM: $x_{\mathrm{bb}}(\tau) = A\cos(2\pi f_m t)$ VSB: $H_v(f + f_c) + H_v(f - f_c) = 1$				Assumptions: AM & FM above threshold		

Modified from: Principles of Communications by Rodger E. Ziemer & William H. Tranter,