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AMPLITUDE MODULATION DSBSC

Electronics & Communication Engg. Dept.

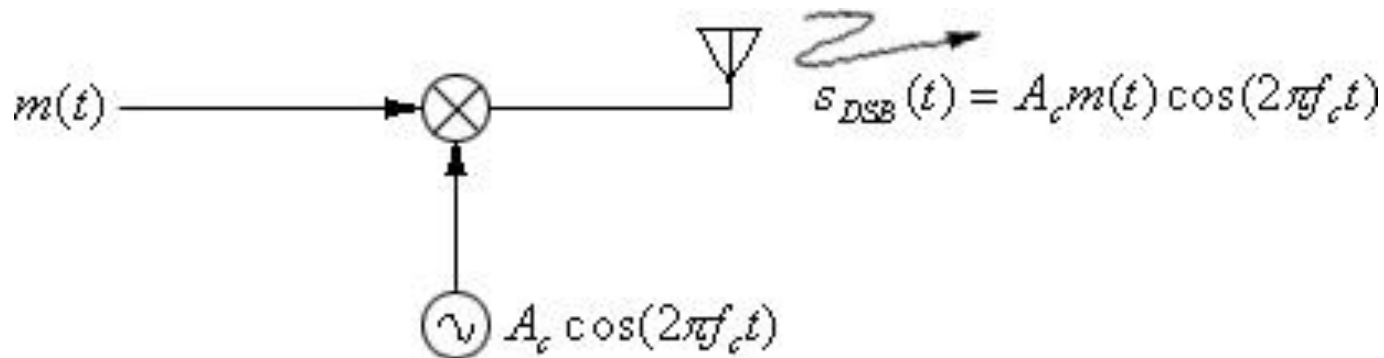
School of Engineering & Technology

CUTM

DSB-SC

To conserve transmitted power, let us suppress the carrier, i.e., let the transmitted waveform be described by

$$s_{DSB}(t) = A_c m(t) \cos(2\pi f_c t).$$

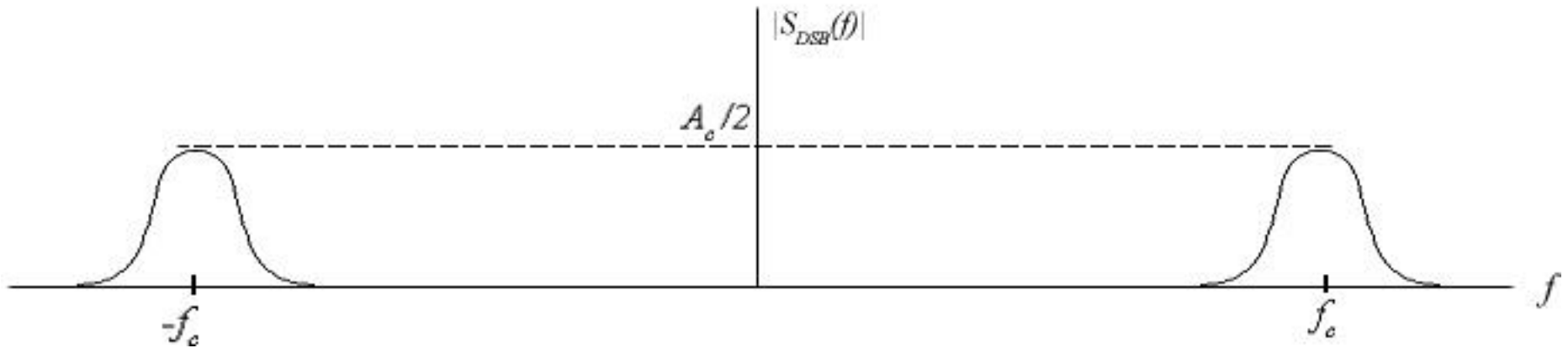


This is called double side-band suppressed carrier (DSB-SC) modulation.

In the frequency domain,

$$\begin{aligned} S_{DSB}(f) &= F\{s(t)\} \\ &= F\{A_c m(t) \cos(2\pi f_c t)\} \\ &= \frac{A_c}{2} [M(f - f_c) + M(f + f_c)] \end{aligned}$$

The modulated waveform now has the following spectral characteristics:

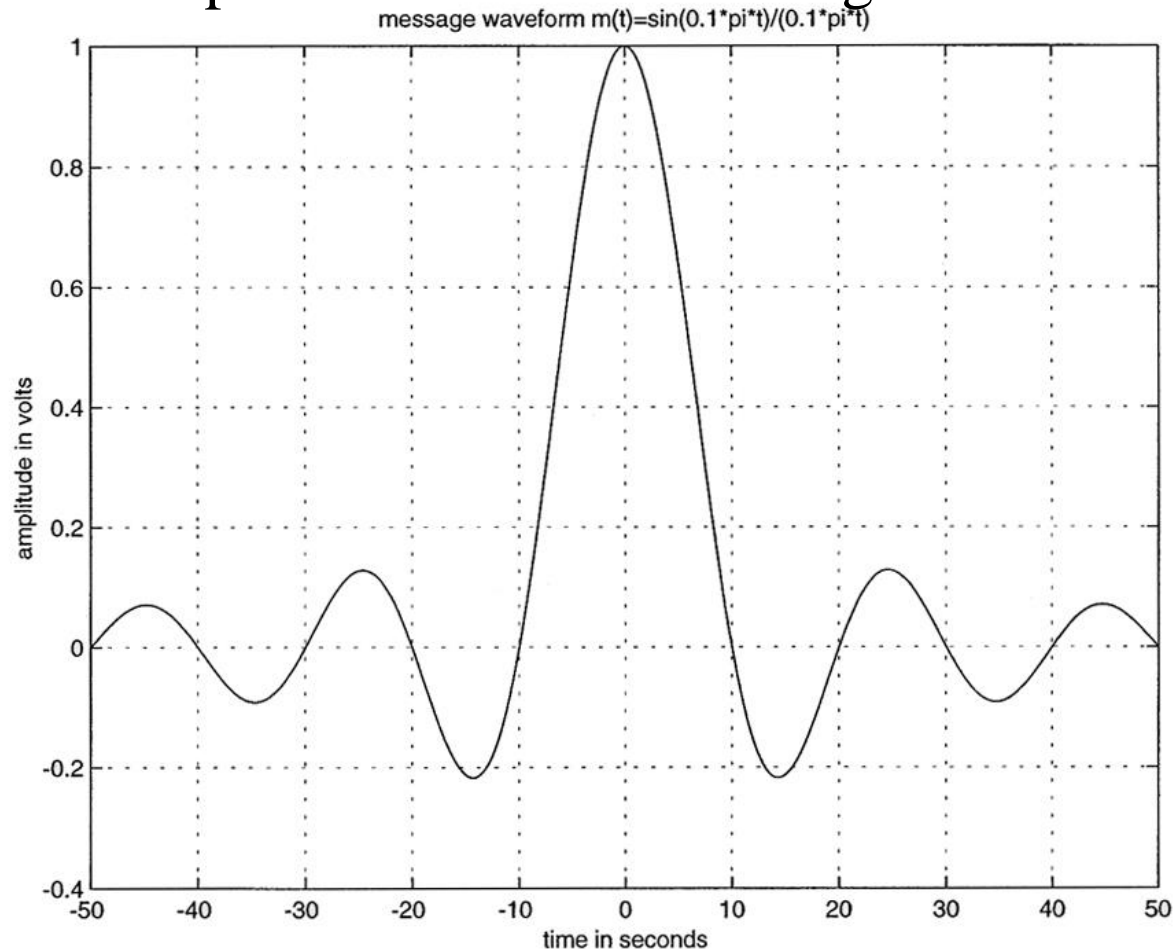


Magnitude spectrum of $s_{DSB}(t)$

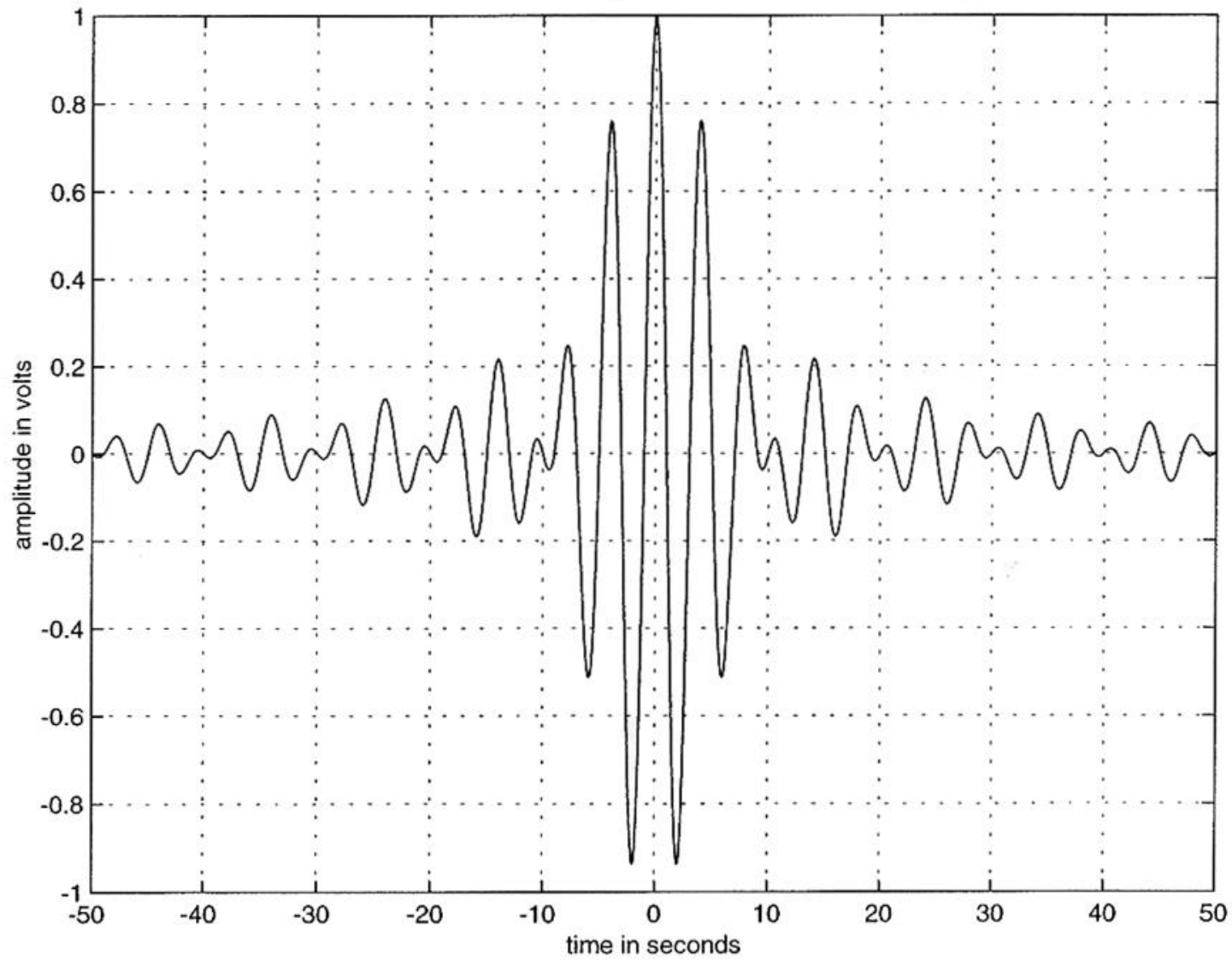
Observations:

1. $B_{DSB} = 2W_m$ (same as standard AM)
2. Transmitted power is less than standard AM

Example: Let a sinc pulse be transmitted using DSB-SC modulation.



DSB modulated waveform when $f_c=0.25$ Hz and $m(t)=\sin(0.1\pi t)/(0.1\pi t)$





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THANK YOU.....