

Soru: Consider the following modulated wave

$$S(t) = A_c \cos(2\pi f_c t) + m(t) \cos(2\pi f_c t) - \hat{m}(t) \sin(2\pi f_c t)$$

which represents a carrier plus an SSB signal, with  $m(t)$  denoting the message signal and  $\hat{m}(t)$  Hilbert transform. Determine the conditions for which an ideal envelope with  $S(t)$  as input, would produce a good approximation to the message signal  $m(t)$ .

Çözüm: SSB sinyal envelope detektöre girer, çıkarmı  
göster diyor

Bir SSB sinyal:

Formülü:  $S(t) = A_c \cos(2\pi f_c t) + m(t) \cos(2\pi f_c t) - \hat{m}(t) \sin(2\pi f_c t)$

Bunu veririz,

$$\underbrace{[A_c + m(t)]}_{\text{genlik}} [\cos 2\pi f_c t] - \underbrace{\hat{m}(t) \sin(2\pi f_c t)}_{\text{genlik}}$$

Envelope detector genlikleri karesini alır toplar sonucu  
alır

$$a(t) = \sqrt{[A_c + m(t)]^2 + [\hat{m}(t)]^2}$$

$$= \sqrt{A_c^2 + 2A_c m(t) + m^2(t) + \hat{m}^2(t)}$$