$$y(t) = \left(1 + \frac{m(t)}{A_c}\right) c(t)$$

$$C(t) = A_c \cos(2\pi F_c t)$$

$$Y(\omega) = F\left\{C(t) + \frac{C(t).m(t)}{A_c}\right\}$$

$$Y(\omega) = F\{C(t)\} + \frac{2}{A_c} F\{C(t).m(t)\}$$

- $F\{C(t)\} = C(\omega)$

$$= \int_{-\infty}^{+\infty} \cos(\omega t).e^{-j\omega t} dt = A_c F\left\{\frac{e^{j\omega_c t} + e^{-j\omega_c t}}{2}\right\}$$

$$= A_c\left[F\{e^{j2\pi F_c}\} + F\{e^{j\omega_c t}\right]$$

$$= A\left[2\pi\delta(\omega - \omega_0) + 2\pi\delta(\omega + \omega_0)\right]$$