This result and (14) then imply

$$\sigma^2 = \frac{1}{4} \int_0^\infty [M(\omega)M(-\omega) + M(\omega)\{M(\omega)\}_c$$

$$+ \{M(-\omega)\}_cM(-\omega) + \{M(-\omega)M(\omega)\}_c]w_s(f)\, df,$$

(15)

which immediately reduces to (4).

If in place of equation (7) we start with

$$\psi_s(t; \tau) = \varepsilon(z(t)z(t + \tau)$$

and employ the Wiener-Khintchine relations\(^1\) to write

$$w_z(t; f) = 2 \int_{-\infty}^\infty \psi_z(t; \tau)e^{-i\omega \tau} \, d\tau$$

as the time dependent spectral density, then using the above techniques we can show that

$$w_z(t; f) = \frac{1}{4} H(|\omega|)\left\{ \sum_{m=1}^\infty a_m[\{M(\omega - \omega_m)\}_c + M(-\omega + \omega_m)]e^{i(\omega_m + \phi_m)}w_s(f - f_m)$$

$$+ \sum_{m=1}^\infty a_m[\{M(\omega + \omega_m)\}_c + M(-\omega - \omega_m)]e^{-i(\omega_m + \phi_m)}w_s(f + f_m) \right\}. \quad (16)$$

It is easily seen, then, that

$$\sigma^2 = \frac{1}{2} \int_{-\infty}^\infty w_z(t; f) \, df$$

where $\sigma^2$ is given by (4).


**Correction to the paper**

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By O. L. MANGASARIAN (Shell Development Company)

There is an incorrect statement of a previous result. In particular the last sentence of the Converse Duality Theorem should read:

"If $\varphi(x)$ is quadratic and if $g(x)$ is linear, then a weaker converse theorem is also true if $\varphi(x)$ is merely convex and twice continuously differentiable."