

One port correction:

Define:

$$C = \begin{bmatrix} \Gamma_{a1} & 1 & \Gamma_{a1}\Gamma_{m1} \\ \Gamma_{a2} & 1 & \Gamma_{a2}\Gamma_{m2} \\ \Gamma_{a3} & 1 & \Gamma_{a3}\Gamma_{m3} \end{bmatrix}$$

Where Γ_a are the known complex reflection values of the calibration pieces and Γ_m are the measured values

And:

$$V = \begin{bmatrix} \Gamma_{m1} \\ \Gamma_{m2} \\ \Gamma_{m3} \end{bmatrix}$$

Calculate:

$$E = (C^{*T} * C)^{-1} * C^{*T} * V \quad (C^{*T} \text{ is the transpose of the complex conjugate of } C)$$

$$\text{Or } E = \begin{bmatrix} E_1 \\ E_2 \\ E_3 \end{bmatrix}$$

Then Directivity D, Source Match S and Reflection Tracking R will be:

$$D = E_2, S = E_3, \text{ and } R = E_1 + E_2 * E_3$$

Corrected Results are then:

$$\Gamma_a = \frac{\Gamma_m - D}{R + S(\Gamma_m - D)}$$