



$$z[n] = \mathbf{w}^H[n] \mathbf{x}[n] = \begin{bmatrix} w_0[n] \\ w_1[n] \\ \vdots \\ w_{M-1}[n] \end{bmatrix}^H \begin{bmatrix} x_0^\Delta[n] \\ x_1^\Delta[n] \\ \vdots \\ x_{M-1}^\Delta[n] \end{bmatrix}. \quad (1)$$