

The SIMO model consists of L virtual subchannels fed from a common input. Let

$$\mathbf{h}_n^{(l)} = [h_{n0}^{(l)}, h_{n1}^{(l)}, \dots, h_{nM}^{(l)}]^{M+1}$$

$$\mathbf{u}_n^{(l)} = [u_{n1}^{(l)}, u_{n2}^{(l)}, \dots, u_{nN+1}^{(l)}]^N$$

$$\mathbf{h}_n^{(l)} = [\mathbf{h}_n^{(l)}, \mathbf{h}_n^{(l)}, \dots, \mathbf{h}_n^{(l)}]^N.$$

Then

$$\mathbf{h}_n^{(l)} = \mathbf{h}_n^{(l)} + \mathbf{h}_n^{(l)},$$

where

$$\mathbf{h}_n^{(l)} = \begin{bmatrix} h_{n0}^{(l)} & h_{n1}^{(l)} & \dots & h_{nM}^{(l)} & 0 & 0 \\ 0 & h_{n0}^{(l)} & \dots & h_{nM}^{(l)} & 0 & 0 \\ \vdots & \vdots & \ddots & \vdots & \vdots & \vdots \\ 0 & 0 & \dots & h_{n0}^{(l)} & h_{n1}^{(l)} & \dots & h_{nM}^{(l)} \end{bmatrix}^{N(M+N)}.$$