Model Documentation of the 'Transmission Line SLICOT Working note 2002-2'

1 Nomenclature

1.1 Nomenclature for Model Equations

x	state vector
u	control input vector
w	noise vector
z	regulated output vector
y	measurement vector

2 Model Equations

State Vector and Input Vector:

$$x \in \mathbb{R}^2 56u \qquad \in \mathbb{R}^2 w \in \mathbb{R}^2 56z \qquad \in \mathbb{R}^2 56y \in \mathbb{R}^2$$

System Equations:

$$\dot{x}(t) = Ax(t) + B_1 w(t) + Bu(t) \tag{1a}$$

$$z(t) = C_1 x(t) + D_{11} w(t) + D12u(t) \tag{1b}$$

$$y(t) = Cx(t) + D21w(t) \tag{1c}$$

Outputs: z

2.1 Exemplary parameter values

Parameters omitted due to large matrizes. See Source code.

3 Derivation and Explanation

This model is part of the "'COMPleib"' - library and wasautomatically imported into ACKREP.
The original description was:
TL Transmission Line SLICOT Working note 2002-2 Y. Chahlaoui, P. Van Dooren –> Ex. 2.2 W. Draijer, M. Steinbuch, O.H. Bosgra and J.-R. Li and J. White, "Efficient Model Reduction of Inter- connect via Approximate System Gramians", IEEE, 0-7803-5832-5/99, 1999 Note Ex'=Ax+Bu y=Cx given

4 Simulation

References

[1] . Chahlaoui, P. Van Dooren –¿ Ex. 2.2 W. Draijer, M. Steinbuch, O.H. Bosgra and J.-R. Li and J. White, "Efficient Model Reduction of Inter- connect via Approximate System Gramians", IEEE, 0-7803-5832-5/99, 1999