Computer Program Descriptions

TLMRES—The TLM Computer Program for the Analysis of Microstrip Resonators

PURPOSE:	This program, based on the TLM method of numerical analysis in three dimensions [1]–[3], provides the exact numerical solution for general electromagnetic-wave problems.
LANGUAGE:	Fortran IV; 121 cards including comments.
AUTHORS:	S. Akhtarzad is with the National Iranian Radio and Television Company, Tehran, Iran, and P. B. Johns is with the Department of Electrical and Electronic Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, England.
AVAILABILITY:	ASIS/NAPS Document No. NAPS 02862. User's manual with two examples and program listing is also available from S. Akhtarzad or P. B. Johns at $10.00. A copy of source deck will be made available for $30.00.
DESCRIPTION:	References [1]–[3] present the theory and organization of the package. The aforementioned user's manual [4] has details on how to use the program and includes two examples.

The package was tested on the ICL 1906A computer of Cripps Computing Centre, University of Nottingham, Nottingham, England. Storage requirements of the program are variable and dependent on the size of the problem [2], [3].

REFERENCES

[1] S. Akhtarzad and P. B. Johns, "Generalized elements for the TLM method of numerical analysis," *Proc. Inst. Elec. Eng.*, vol. 122, Dec. 1975.
[2] ——, "The solution of Maxwell's equations in three space dimensions and time by the TLM method of numerical analysis," *Proc. Inst. Elec. Eng.*, vol. 122, Dec. 1975.
[3] ——, "Three-dimensional TLM computer analysis of microstrip resonators," *IEEE Trans. Microwave Theory Tech.* (*1975 Symposium Issue*), vol. MTT-23, Dec. 1975.
[4] S. Akhtarzad, "TLMRES—The TLM computer program manual for the three-dimensional space," University of Nottingham, Nottingham, England, Internal Rep., July 1975.