TRANSMISSION-LINE ANALOGS FOR PIEZOELECTRIC LAYERED STRUCTURES

DISSERTATION

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by

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VITA

Arthur Ballato was born in Astoria, New York, on October 15, 1936. He graduated from Sewanhaka High School, Floral Park, New York, in 1954, and received the S.B. degree in electrical engineering from the Massachusetts Institute of Technology in 1958. He attended Rutgers University from 1958 to 1963, and was awarded the M.S. degree in electrical engineering in 1962. In 1963 he entered the Polytechnic Institute of Brooklyn, to pursue studies leading to the Ph.D. degree in Electrophysics.

Upon completing his undergraduate work in 1958, he joined what was then the Piezoelectric Crystal Branch of the U. S. Army Signal Research & Development Laboratory, Fort Monmouth, New Jersey, where began his interest and education in crystal physics. Since then he has been involved in studies of the influence of external forces on crystal vibrators, and the elastic and thermal properties of quartz; most recently he has been concerned with improving the performance of resonators of quartz and other piezoelectric substances for filter applications, and with the precision measurement of their equivalent circuit parameters. The results of these studies have been reported in journals of electronics and physics and embodied in a number of patents.

Mr. Ballato has been generously supported in his entire graduate studies program by the U. S. Army Electronics Technology & Devices Laboratory, U. S. Army Electronics Command, Fort Monmouth, New Jersey, and its antecedents, by released time and tuition reimbursement.

During the interval January 1971 to June 1972 he was permitted to devote full time to the work reported in this dissertation. The results reported herein will form the basis for the development of new devices in future assignments.

Mr. Ballato is a member of the American Physical Society, the Institution of Electrical Engineers, and Sigma Xi, and is a senior member of the IEEE.

In 1959 he was married to Margaret Moran. They have two sons, Thomas and John.

DEDICATION

To the ladies in my life:

my mother, and my wife.

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I have good cause to be grateful to a large number of people, and I take this opportunity to thank them publicly, both for their assistance and support during the performance and writing of this dissertation, and also for help extended during many prior years leading up to it.

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