PROJECT INITIATION

Date: January 30, 1973

Project Title: Dielectric Constant and Loss Tangent Measurements on Polyimide Specimens

Project No.: A-1350

Project Director: Dr. J. E. Atwood

Sponsor: Transwic Corporation, Marion, Virginia 24354

Effective: 1/24/73. Estimated to run until: 2/23/73.

Type Agreement: Purchase Order No. (75-1)16. Amount: $6,000.00.

RESULTS REQUIRED: Results upon completion.

Sponsor Contact Persons: Technical Contractual
Dr. Lee Copeland Dr. T. C. Franks
(703) 733-5121 (703) 733-5121

ASSIGNED TO: High Temperature Materials Division

COPIES TO:

Project Director
Director
Assistant Director
GTRI
Division Chief(s)
Service Groups
Patent Coordinator
Photographic Laboratory
Security, Property, Reports Coordinator
EES Accounting
EES Supply Services
Library
Rich Electronic Computer Center
Project File
Other
GEORGIA INSTITUTE OF TECHNOLOGY
Engineering Experiment Station

PROJECT TERMINATION

Date March 14, 1973

PROJECT TITLE: Dielectric Constant and Loss Tangent Measurements on Polyimide Specimens

PROJECT NO: A-1500

PROJECT DIRECTOR: H. S. A. Iser

SPONSOR: Brunswick Corp.; Marion, Va.

TERMINATION EFFECTIVE: 2/21/73 (Final Report submitted)

CHARGES SHOULD CLEAR ACCOUNTING BY: ASAP

Contract Closeout Items Remaining: Final Invoice.

HIGH TEMPERATURE MATERIALS DIVISION

COPIES TO:
Project Director
Director
Associate Director
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Rich Electronic Computer Center
26 February 1973

Brunswick Corporation
Technical Products Division
1400 Industrial Road
Marion, Virginia 24354

Attention: Mr. Arthur Thompson

Subject: Final Report, Brunswick Purchase Order No. DVS-1016; Georgia Tech Research Project 1506

Dear Mr. Thompson:

This letter serves as a final report on the above subject and includes a tabulation of the electrical properties of the polyimide-quartz material specimens.

The X-Band transmission data have been presented to you in the report of February 7, 1973. Based on these transmission data, the dielectric constant and loss tangent of the samples have been calculated and are presented in Table I.

The apparent tanδ notation of Table I is used to calculate the loss for the sample thickness of interest at a temperature of near 900°F. In other words, for a sample thickness of 0.875 cm and at a frequency of 9.3 GHz, and for a material of the apparent tanδ denoted, one can calculate the RF loss. This loss occurs during the time interval shown on the transmission versus time curves.

These measurements were performed at a single frequency and the data should be applied to frequencies near 9.3 GHz. No estimate is made as to the dispersive properties of the mechanism which causes the attenuation.

For further information, please contact me at (404) 894-3504 or Dr. Steve H. Bomar at (404) 894-3667.

Respectfully submitted,

[Signature]

Harold L. Bassett
Senior Research Engineer

HLB:sh

Enclosure
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<th>.0009</th>
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