

PROJECT ADMINISTRATION DATA SHEET

ORIGINAL  REVISION NO. \_\_\_\_\_

Project No. A-3451 GTRI/~~GMX~~ DATE 1/7/83

Project Director: Joe M. Newton ~~SK337~~ Lab EML

Sponsor: Boeing Company

Type Agreement: P. O. D4-978806-0750N

Award Period: From 1/3/83 To 1/31/83 (Performance) \_\_\_\_\_ (Reports)

Sponsor Amount: Total Estimated: \$ 2,632 Funded: \$ 2,632

Cost Sharing Amount: \$ \_\_\_\_\_ Cost Sharing No: \_\_\_\_\_

Title: Measure Dielectric Constant - Rexolite Samples

ADMINISTRATIVE DATA OCA Contact Frank Huff

1) Sponsor Technical Contact:  
Mr. H. Burke  
Boeing Company  
P. O. Box 3707  
Seattle, WA 98124  
(206) 655-8100 or 767-1333

2) Sponsor Admin/Contractual Matters:  
Mr. Tim Anglea ( No. 28)  
Mail Stop 9E-60  
P. O. Box 3707  
Boeing Company  
Seattle, WA 98124  
(206) 251-4116

Defense Priority Rating: NA

Military Security Classification: \_\_\_\_\_  
(or) Company/Industrial Proprietary: \_\_\_\_\_

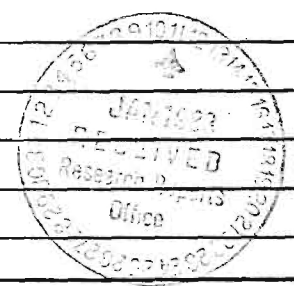
RESTRICTIONS

See Attached \_\_\_\_\_ Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with None

COMMENTS:



COPIES TO:

Research Administrative Network  
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GTRI  
Library

Research Communications (2)  
Project File  
Other Proj Dir  
Other John - 1/31/83

SPONSORED PROJECT TERMINATION/CLOSEOUT SHEET

Date 10/13/83

Project No. A-3451 ~~XXXXXX~~ Lab EML

Includes Subproject No.(s) NONE

Project Director(s) Joe M. Newton ~~GTRI/GIT~~

Sponsor Boeing Company

Title: Measure Dielectric Constant - Rexolite Samples

Effective Completion Date: 1/31/83 (Performance) \_\_\_\_\_ (Reports)

Grant/Contract Closeout Actions Remaining:

- None
- Final Invoice or Final Fiscal Report
- Closing Documents
- Final Report of Inventions
- Govt. Property Inventory & Related Certificate
- Classified Material Certificate
- Other \_\_\_\_\_

Continues Project No. \_\_\_\_\_

Continued by Project No. \_\_\_\_\_

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 Other \_\_\_\_\_

A-3451



ENGINEERING EXPERIMENT STATION  
Georgia Institute of Technology  
A Unit of the University System of Georgia  
Atlanta, Georgia 30332

ELECTROMAGNETICS LABORATORY  
MILLIMETER WAVE TECHNOLOGY DIVISION

16 February 1983

Mr. Tom Anglea  
Boeing Company  
Mail Stop 9E-60  
P. O. Box 3707  
Seattle, WA 98124

Subject: Rexolite Dielectric Constant Measurements  
(P.O. D4-978806-0750N)

Dear Mr. Anglea:

The dielectric constant and loss tangent of the four Rexolite samples you sent to Georgia Tech have been measured, at 95 GHz, using a Fabry-Perot cavity resonator. The data, which is summarized in Table 1, is interesting in that this is the first time I have come across Rexolite 1422 with a dielectric constant significantly different from 2.53/2.54. To verify that the variations observed were real, several measurements were made on your samples as well as a standard reference Rexolite sample we have here. The collective sum of all measurements indicates that the values shown in the Table are indeed correct: Standard deviation of the measurements on any one sample was better than 0.01 and 0.0005 for the dielectric constant and loss tangent, respectively. I would like to point out that even though the loss tangent standard deviation is given to 4 decimal places, we reject the hypothesis that we can actually measure to this level of accuracy.

If I may be of any additional help, please do not hesitate in calling on me.

Sincerely, *JMN*

*JMN* Joe M. Newton  
Senior Research Engineer  
Georgia Tech EES/MMD

APPROVED FOR DISTRIBUTION

*JMN* John M. Cotton  
Chief, Millimeter Wave Division  
Electromagnetic Laboratory

cc: George Kirkman

TABLE 1

## SUMMARY OF REXOLITE DIELECTRIC CONSTANTS

Sample Number	Number of Sample Measurements	Dielectric Constant	Loss Tangent
2	4	2.54	0.002
3	9	2.61	0.002
4	4	2.55	0.002
5	5	2.57	0.002
Reference	-	2.53	0.001