



June 25, 2008

Bogen Communication Inc.  
Mr. Gian Portanova  
50 Spring St. Ramsey, NJ 07446

Our Reference: File SV17381 / Project 08CA31300

Subject: UL Standard 2043, 2nd Edition "Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces".

Dear: Mr. Portanova

This Report summarizes the data developed on the samples you provided which were subjected to the flame test described in UL Standard 2043, 2nd Edition. Testing was conducted on June 23, 2008 at our Northbrook testing facility.

**GENERAL:**

It should be understood that these results apply only to the particular sample submitted for testing. The test results indicated in this Report are not intended to imply Listing, Classification or Recognition of any product or materials.

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# TEST RECORD



## SAMPLES:

The Speaker evaluated is described in Table 1. Due to constructional similarity of models, OCS1 will be representative of models HFCS1 and HFCS1LP. Underwriters Laboratories Inc. did not witness the production of the test sample nor were we provided with information relative to the formulation or identification of component materials used in the manufacture of the test samples.

Table 1 - Sample Description

<b>Sample Reference</b>	<b>Description</b>
A	Model OCS1 Speaker

## METHOD:

The tests were conducted in accordance with the test procedure described in UL Standard 2043, 2nd Edition ("Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces"), dated June 27, 2001. This test method is used to determine the heat release rate, smoke release and optical density of the samples. The test samples were positioned and installed in the test enclosure as described in Appendix A.

## CRITERIA:

Test samples fail to meet the requirements of UL 2043 if any of the following criteria are exceeded:

- 1) The peak heat release rate shall be 100 kW or less during the test.
- 2) The peak optical density shall be 0.50 or less during the test.
- 3) The average normalized optical density shall be 0.15 or less during the test.

Note: The above criteria do not include the contribution of the propane ignition burner.

**RESULTS:**

A summary of test results are tabulated in Table 2 below. Graphs of heat release rate, smoke release rate, and normalized optical density are given in Appendix B. Pre and post-test photographs for each test are given in Appendix A. In addition, a videotape of each test was made and provided.

Table 2 - Test Results

<b>Sample - Test Ref.</b>	<b>Peak Heat Release Rate (kW)</b>	<b>Peak Normalized Optical Density</b>	<b>Average Normalized Optical Density</b>	<b>Peak Smoke Release Rate (m<sup>2</sup>/s)</b>	<b>Total Smoke Released (m<sup>2</sup>)</b>
A-1	14	0.26	0.03	0.11	14.7
A-2	12	0.24	0.03	0.10	15.0

Please note that the values in Table 2 above as well as the graphs in Appendix B omit the heat and smoke contribution from the propane ignition burner.

**COMPLETION OF INVESTIGATION**

Since this completes the anticipated work, we have instructed our Accounting Department to terminate the investigation and invoice you for the charges incurred to date.

If you have any questions, please do not hesitate to contact the undersigned.

Very truly yours

Reviewed by:



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# APPENDIX A

## TEST NOTES:

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### TEST A-1

06230812

**Sample Description:** Model OCS1 Speaker

**Test Notes:** The sample was positioned in a ceiling tile face up supported by fine wire mesh and situated above the center of the test burner.

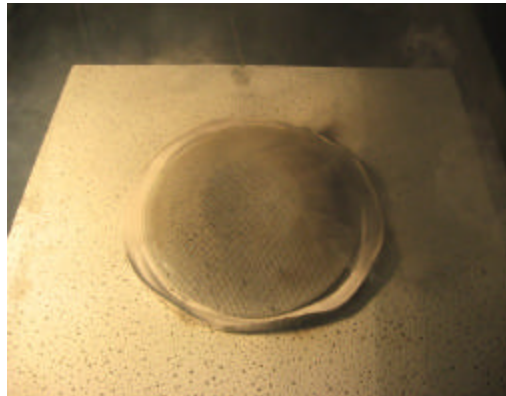
**Post Test Observations:** The sample was still burning with medium smoke at the conclusion of the test.

### **Photos:**

**Pre-Test**



**Post-Test**



**TEST A-2**

06230814

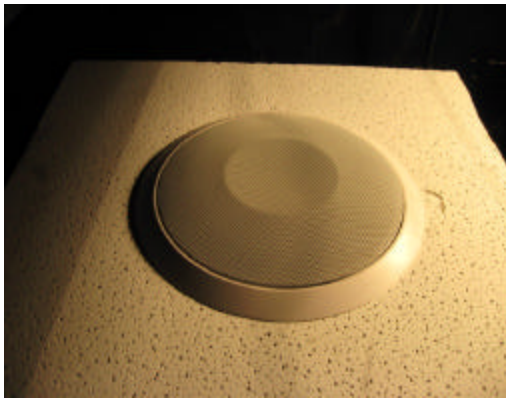
**Sample Description:** Model OCS1 Speaker

**Test Notes:** The sample was positioned in a ceiling tile face up supported by fine wire mesh and situated above the center of the test burner.

**Post Test Observations:** The sample was still burning with medium smoke at the conclusion of the test.

**Photos:**

**Pre-Test**



**Post-Test**

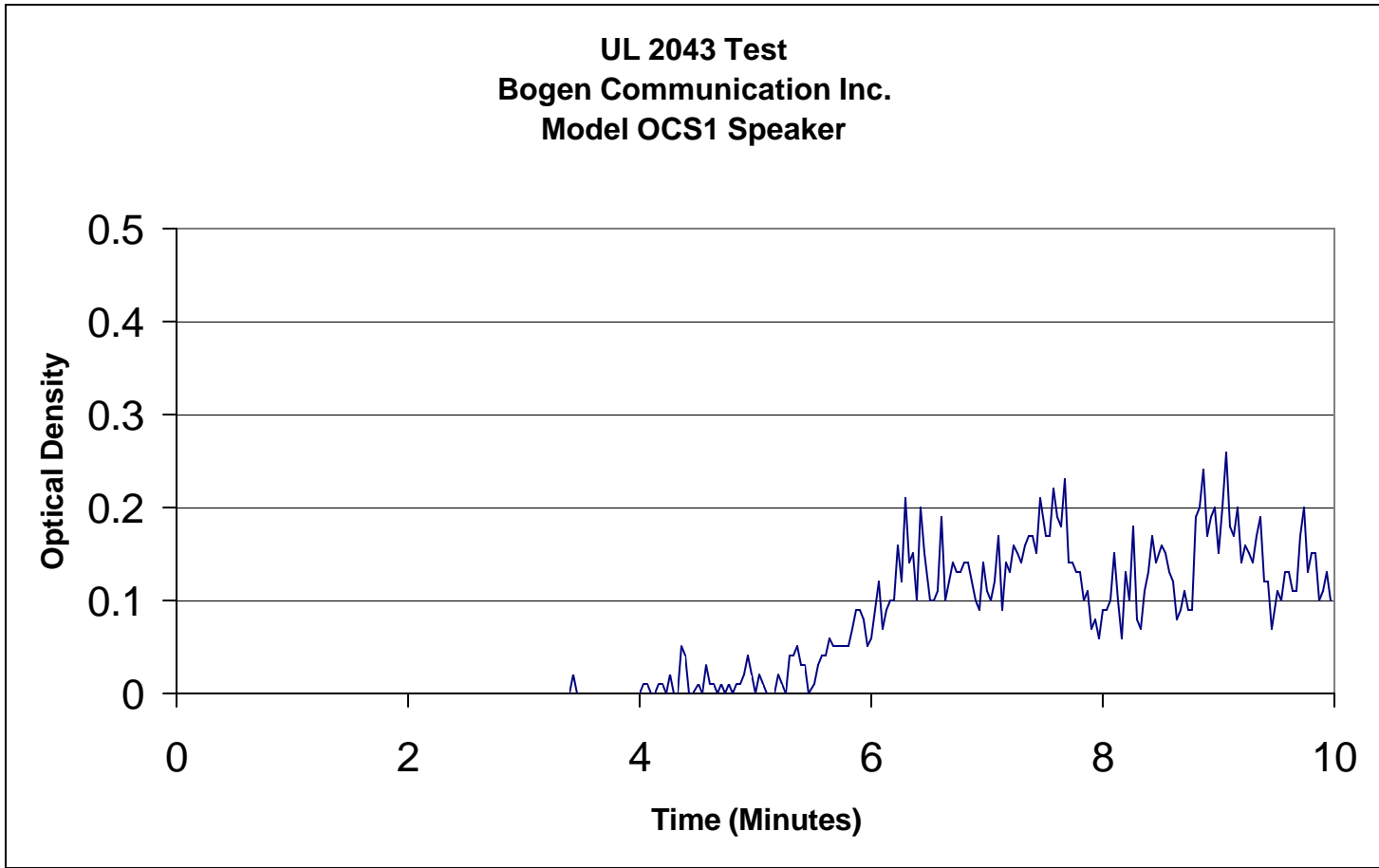
No Picture Available

**APPENDIX B**

**GRAPHICAL DATA**

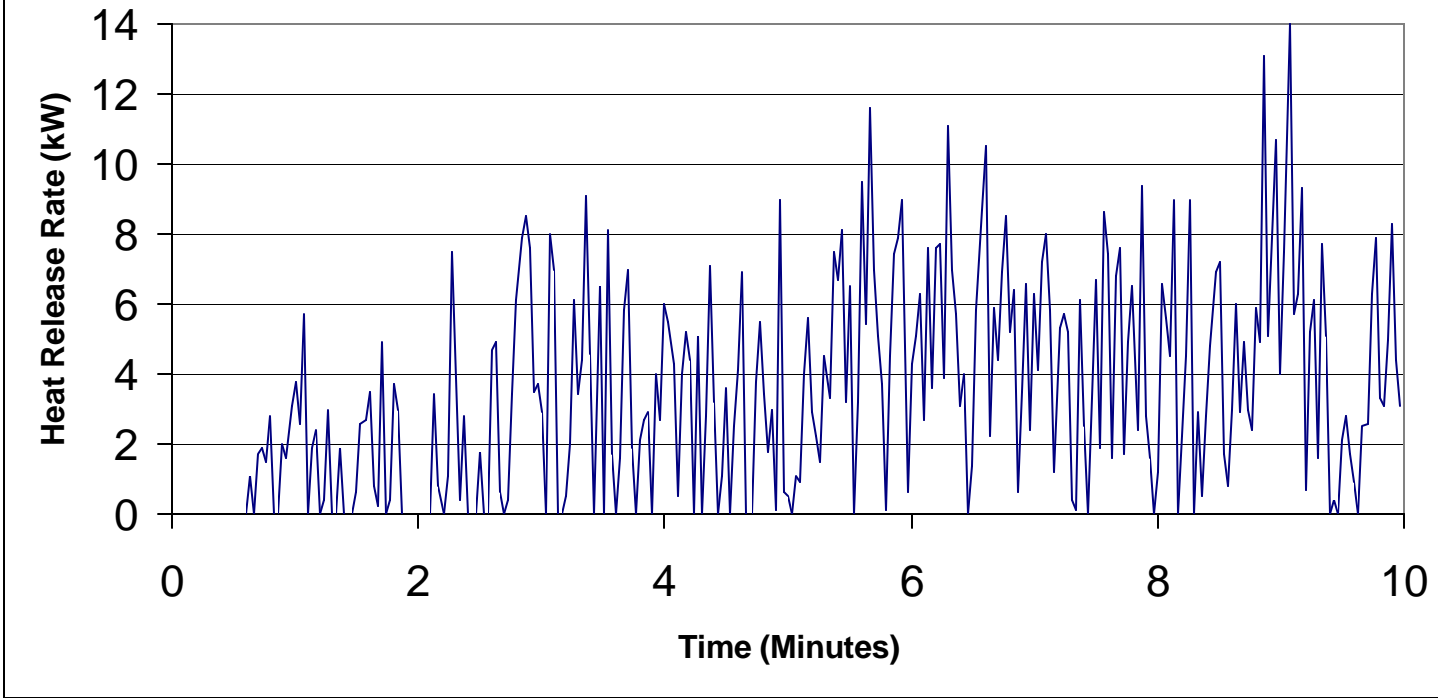
**File SV17381, Project 08CA31300**

**UL 2043 Test  
Bogen Communication Inc.  
Model OCS1 Speaker**



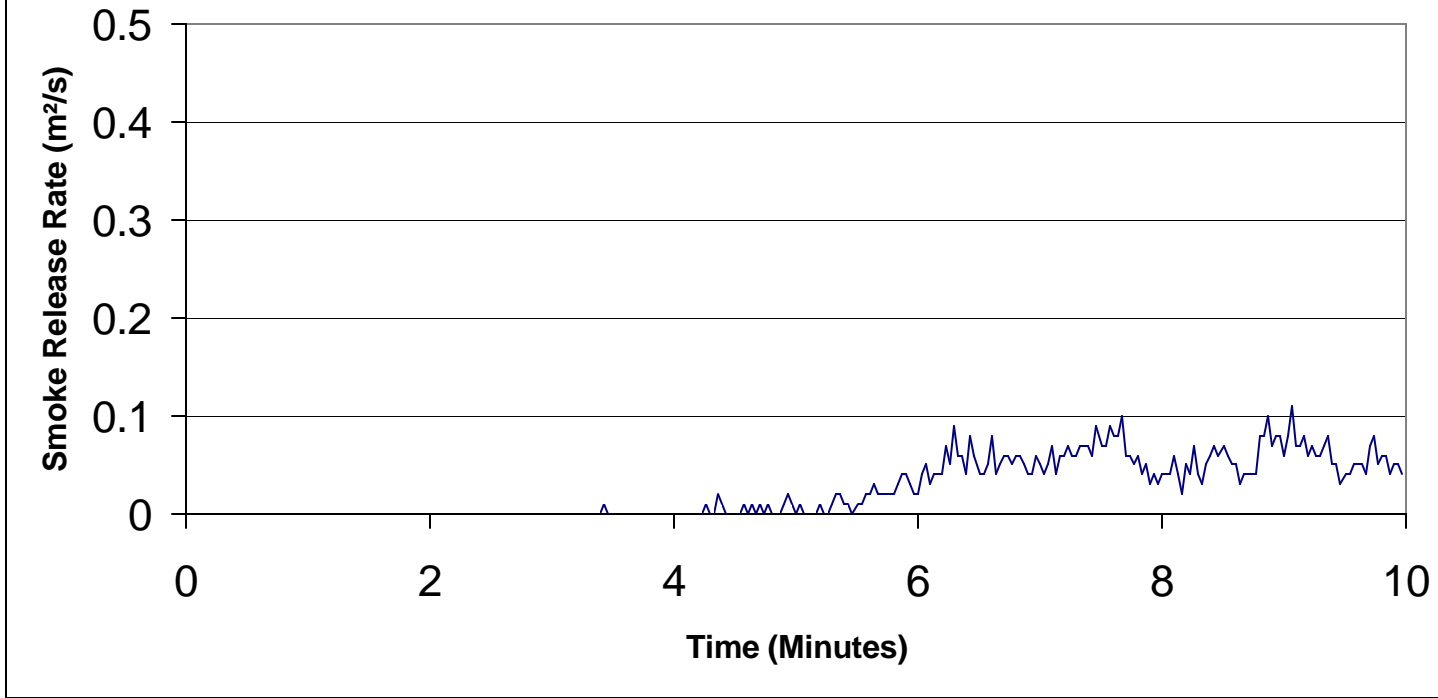
<b>Test Number</b>	<b>Test Code</b>	<b>Description</b>	<b>Peak Normalized Optical Density</b>	<b>Average Normalized Optical Density</b>
A-1	06230812	Model OCS1 Speaker	0.26	0.03

**UL 2043 Test  
Bogen Communication Inc.  
Model OCS1 Speaker**

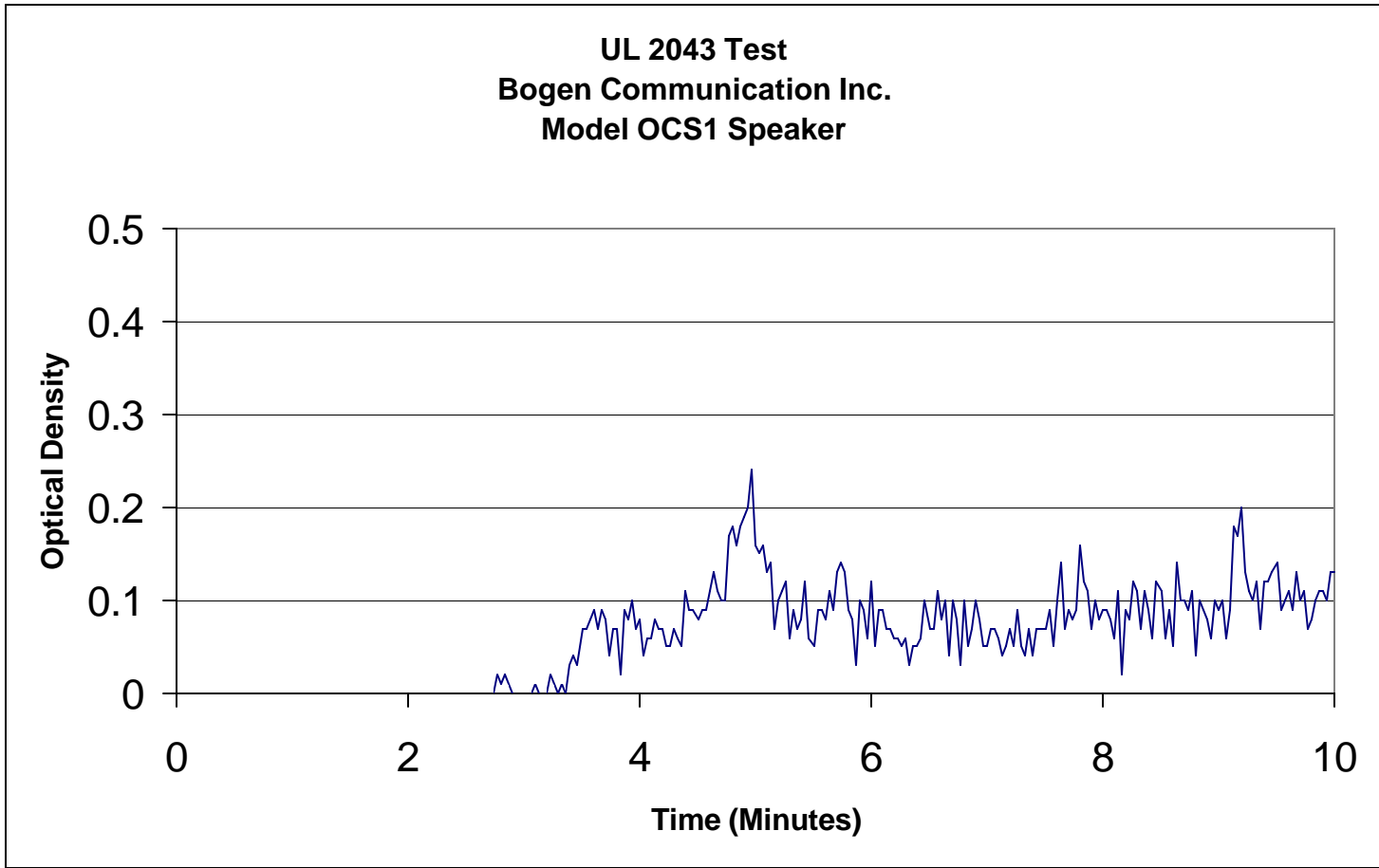


Test Number	Test Code	Description	Peak Heat Release Rate (kW)
A-1	06230812	Model OCS1 Speaker	14

**UL 2043 Test  
Bogen Communication Inc.  
Model OCS1 Speaker**

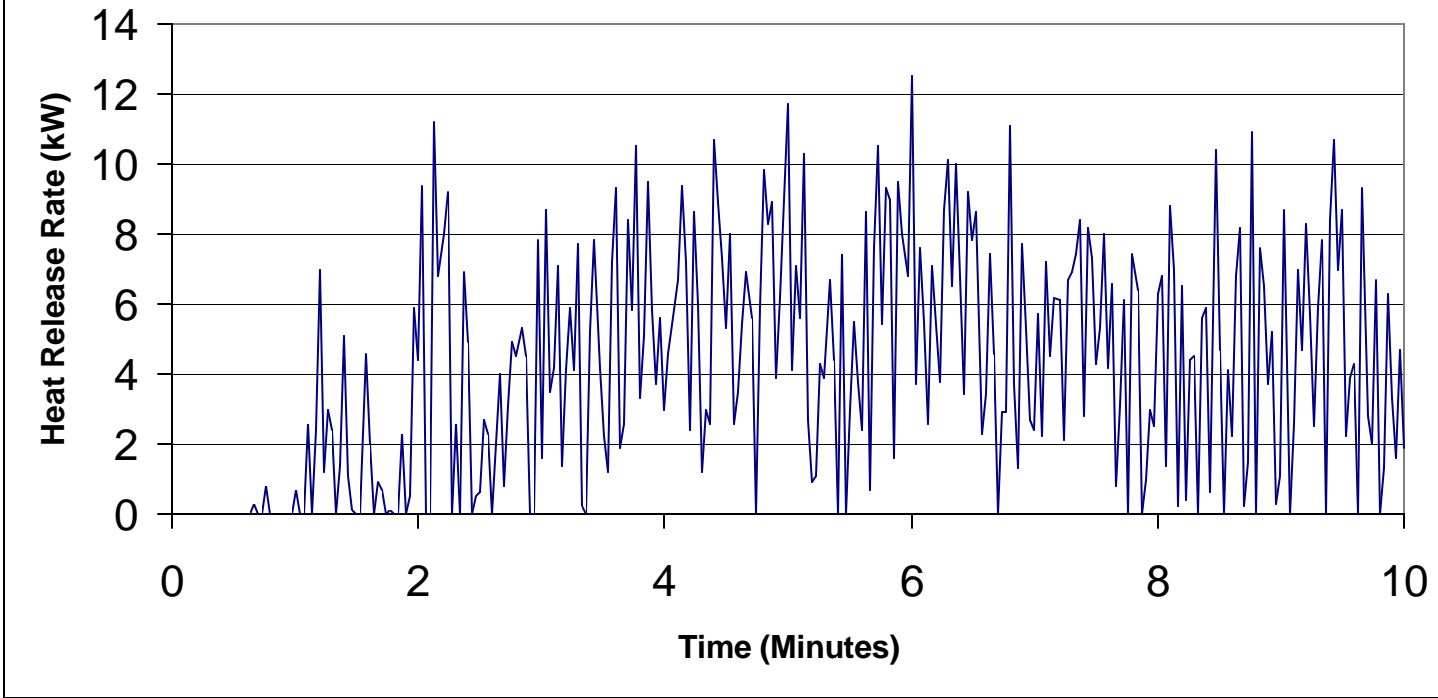


Test Number	Test Code	Description	Peak Smoke Release Rate (m²/s)	Total Smoke Released (m²)
A-1	06230812	Model OCS1 Speaker	0.11	14.7



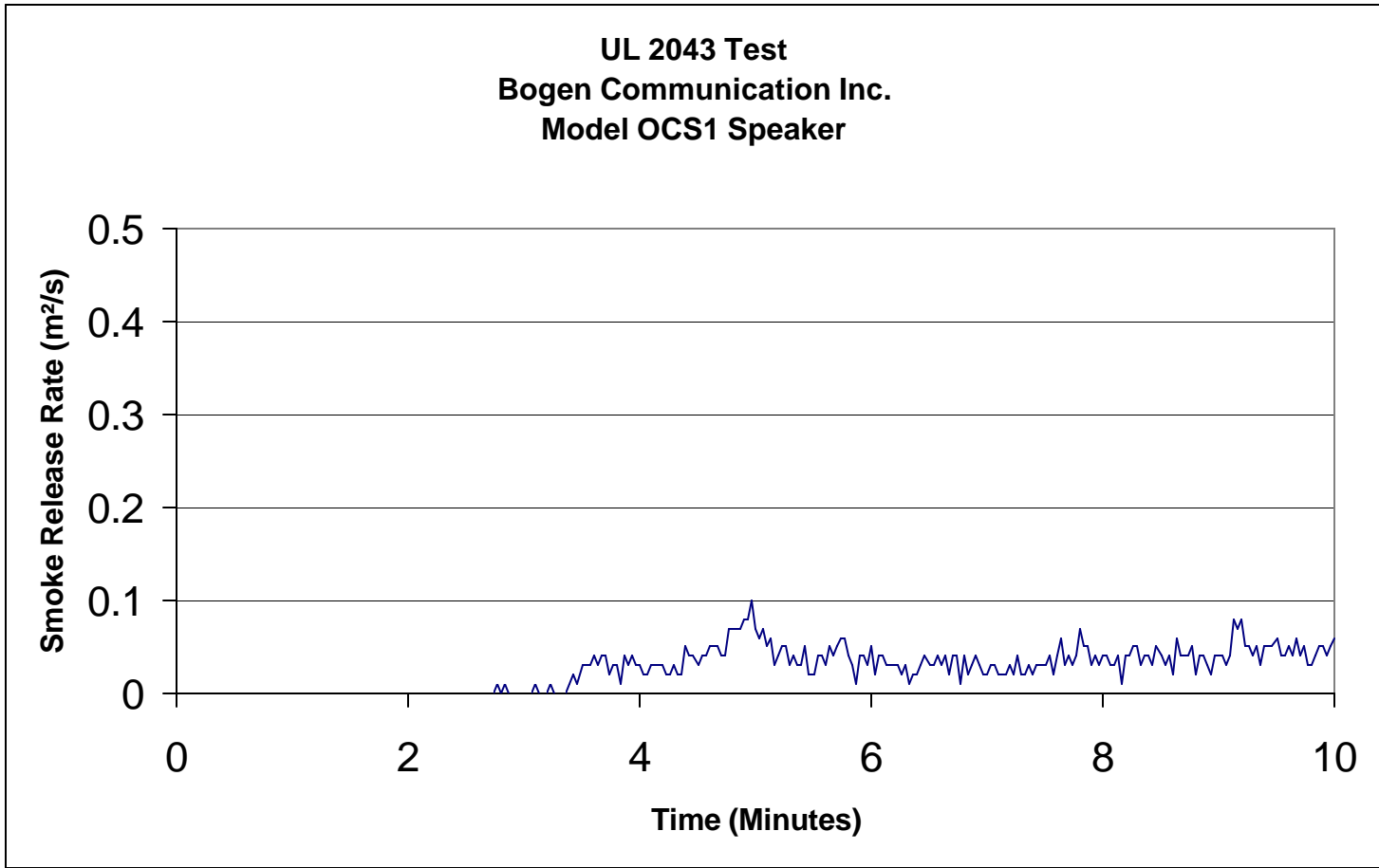
<b>Test Number</b>	<b>Test Code</b>	<b>Description</b>	<b>Peak Normalized Optical Density</b>	<b>Average Normalized Optical Density</b>
A-2	06230814	Model OCS1 Speaker	0.24	0.03

**UL 2043 Test  
Bogen Communication Inc.  
Model OCS1 Speaker**



Test Number	Test Code	Description	Peak Heat Release Rate (kW)
A-2	06230814	Model OCS1 Speaker	12

**UL 2043 Test  
Bogen Communication Inc.  
Model OCS1 Speaker**



<b>Test Number</b>	<b>Test Code</b>	<b>Description</b>	<b>Peak Smoke Release Rate (m<sup>2</sup>/s)</b>	<b>Total Smoke Released (m<sup>2</sup>)</b>
A-2	06230814	Model OCS1 Speaker	0.10	15.0