



Optic  
Clear  
Solutions

# UV Resistance Test Results

**\*disclaimer\***

Test results should not be shared or made public. These results are private and should only be viewed by those special permission has been granted by Optic Clear Solutions LLC.



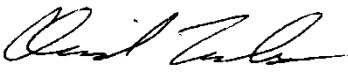
element™


**Element Materials Technology**  
Portland/Denver/Seattle

## Report ETC P8013

**July 15, 2016**

**For: Optic Clear Solutions**

Prepared By:		7/15/2016
	_____	_____
	Element Portland Quality Administrator	Date

Reviewed By:		7/15/2016
	_____	_____
	Element Portland Laboratory Manager	Date

Concurred With:		7/15/2016
	_____	_____
	Element Portland Quality Manager	Date

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## Administrative Data

**Prepared for:** Optic Clear Solutions  
46 Pessera Avenue  
Foothill Ranch, CA 92610

**Test Facility:** Element Materials Technology-Portland  
5245-A NE Elam Young Pkwy  
Hillsboro, OR 97124

Test(s) Performed	Test Specification (Paragraph/Section)
UV Steady State	ASTM G154

Item(s) Tested (Description)	Part Number(s)	Serial Number(s)
Clear plastic sheet		
Clear plastic sheet with decals		
Logo plate		

Rev.	Reason For Revision	Date	Approval
---	Report Issued.	7/15/2016	DB

Date Test Items Received: 5/3/2016

Testing Initiated Date: 5/4/2016

Testing Completed Date: 6/24/2016



Element – Portland/Denver/Seattle

July 15, 2016

Certification No: ETC P8013

Attention: Mr. Sam Truong  
Optic Clear Solutions  
46 Pessera Avenue  
Foothill Ranch, CA 92610

- Reference:
- a. Element Job No.: 8013
  - b. Element Quote No.: 18411
  - c. Customer Purchase Order No.: CC
  - d. Technical Specification: 1. ASTM G154

Element Materials Technology – Portland hereby certifies that the following test sample(s) were subjected to the following test(s).

Quantity	Description	Model/Part Number	Serial Number(s)
1	Clear plastic sheet		
1	Clear plastic sheet with decals		
1	Logo plate		

1. UV Steady State per Reference (b) and (d1), samples were exposed to 1000 hrs of steady state UV light from UVB313 bulbs at a constant temperature of +60°C.

Testing was done in accordance with the above references as evidenced and reported in the accompanying data. The test samples were returned to the customer for evaluation.

The original of this report is on file at Element Materials Technology, Inc. under the above referenced certification number for review by authorized personnel. The results of the testing reported herein relate only to the actual items tested.

Respectfully submitted,



David Bowles  
Quality Administrator  
Element – Portland/Denver/Seattle

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The objective of this test program was to subject customer provided test hardware to environmental simulation in compliance with customer stated specification, including any authorized modification, deviations or concessions to the original requirements. The hardware consisted of items identified in the appropriate sections of this report. In addition to test hardware identification, each section contains information that describes the associated test setup and performance and the resulting data. Element Materials Technology, Inc. measuring instruments used in testing were calibrated according to the requirements of ANSI/NCSL Z540-1 and ISO/IEC 17025, and are traceable NIST or NMI. Calibration records are on file and available for inspection by request. Because the test methods are well established and are qualitative or semi-quantitative in nature, Element Materials Technology, Inc., Inc. does not apply measurement uncertainty unless obligated by contract. Any test hardware operational setups and resulting evaluations or inspections performed by the customer are not included in this report, unless they were explicitly requested. While observations and/or specification compliance statements may be reported, no interpretations or opinions regarding customer product performance are intended. Unless otherwise indicated in the appropriate report section, all contract obligations were met and the test objective achieved.



# Test Data Log

## Section 1 – Job Information

Job Number: 8013  
Customer: Optic Clear Solutions

Date Started: 5/4/2016  
Date Completed: 6/24/2016

QA Reviewer: David Bowles  
Signature: *David Bowles*

Responsible Technician: Brandon Payne  
Quote Issued By: Chris Ingebriksen

Customer Witness: No  Yes  Name:

## Section 2 – Test Parameters

Test Title: UV Weathering  
Test Specification: Customer Statement of Work  
Test Description: Samples to be exposed to 1000 hours of UVB-313 exposure at +60°C.

## Section 3 – Test Sample Information

Sample Description	Sample P/N or Model No.	Sample S/N or Other Identifier	Qty.
Clear plastic sheet			1
Clear plastic sheet with decals			1
Logo plate			1

## Section 4 – Test Equipment

ID No.	Description	Manufacturer	Model No.	Serial No.	Last Cal	Next Cal
408	Temperature / Humidity Meter (Lab Ambient)	Extech	445703	CP94594	12/20/2014	12/31/2016
1146	Accelerated Weathering Tester	Q-Panel Co.	QUV	84-2325-27	5/2/2016	5/2/2017

**Section 5 – Test Log**

Customer Name: Optic Clear

Laboratory Temperature: 71°F

Job Number: 8013

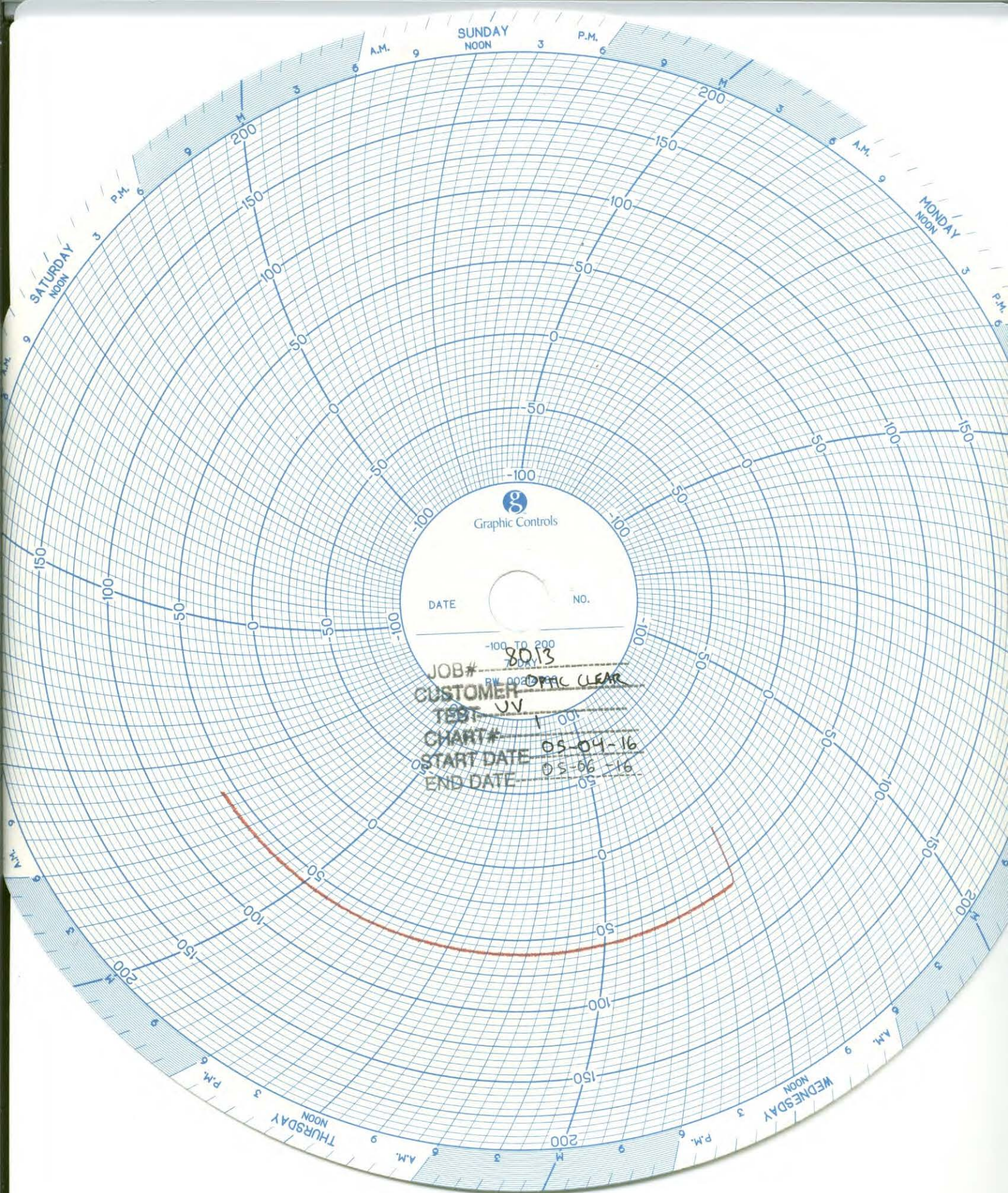
Laboratory Humidity: 43%RH

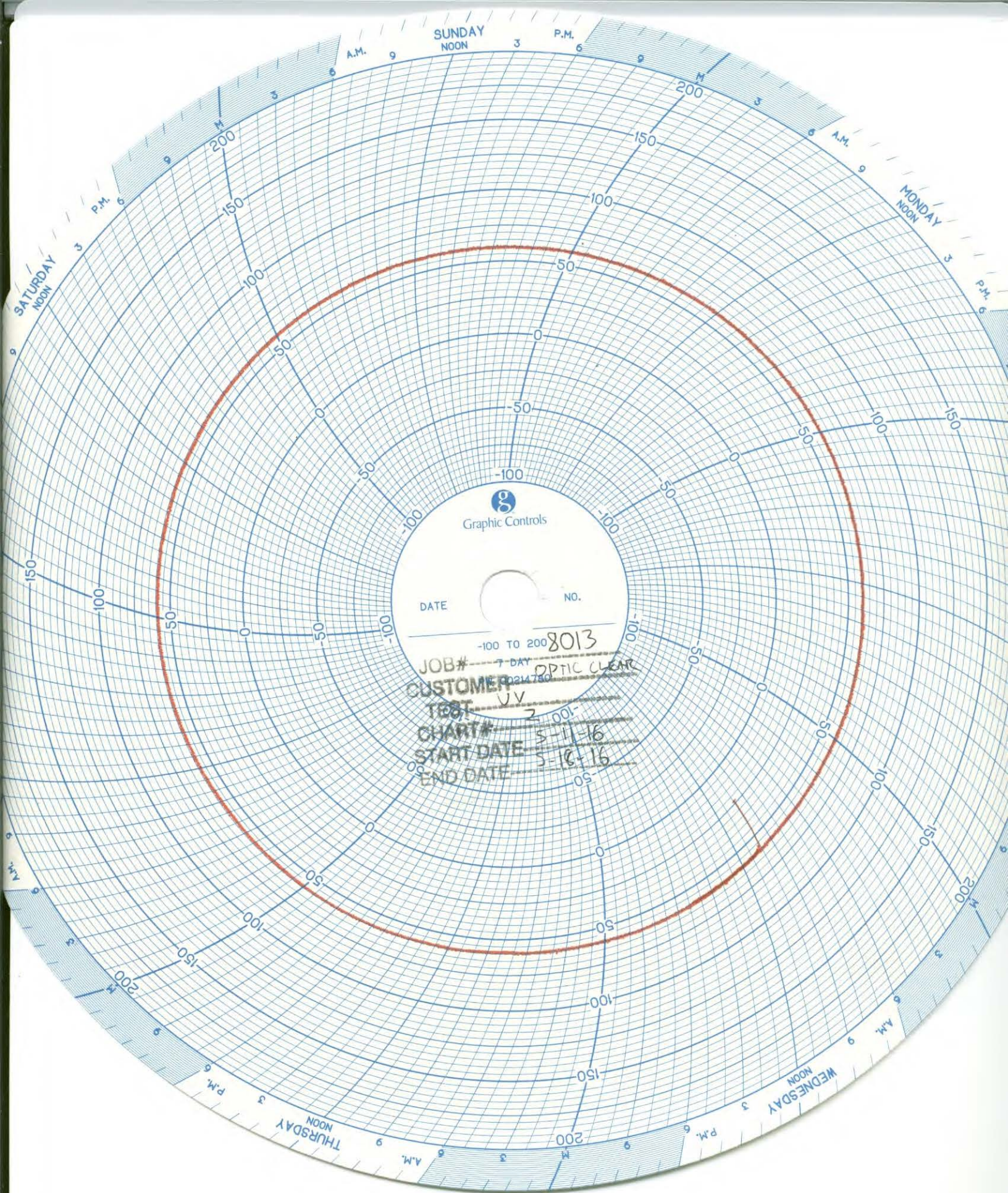
Initials	Date	Time	Notes	Photo
BP	5/4/2016	1150	Begin setup of samples in UV chamber.	<input type="checkbox"/>
BP	5/4/2016	1305	The setup is complete with samples affixed to racks and UVB-313 bulbs installed. Protective films removed from clear panels in accordance with customer instructions. Begin UV exposure.	<input checked="" type="checkbox"/>
BP	5/4/2016	1329	The chamber has reached +60°C. Begin 1000 hours exposure.	<input type="checkbox"/>
BP	5/4/2016	1532	The chamber is at +61°C. Continue exposure.	<input type="checkbox"/>
BP	5/5/2016	0719	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/5/2016	1533	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/6/2016	0712	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/6/2016	0930	Chamber shut down for maintenance with 44 hours completed out of 1000.	<input type="checkbox"/>
BP	5/11/2016	1006	Samples placed back into chamber to resume exposure. Begin transitioning chamber to +60°C.	<input type="checkbox"/>
BP	5/11/2016	1036	The chamber has reached +60°C. Begin remaining 956 hours exposure.	<input type="checkbox"/>
BP	5/11/2016	1538	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/12/2016	0653	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/12/2016	1531	The chamber is at +61°C. Continue exposure.	<input type="checkbox"/>
BP	5/13/2016	0623	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/13/2016	1541	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/14/2016	0754	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/15/2016	0813	The chamber is at +61°C. Continue exposure.	<input type="checkbox"/>
BP	5/16/2016	0732	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/16/2016	1554	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/17/2016	0726	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	5/17/2016	1537	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/18/2016	0727	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/18/2016	1551	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/19/2016	0724	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/19/2016	1528	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/20/2016	0738	The chamber is at +60°C. 257 hours of exposure completed out of 1000. Chamber shut off for maintenance. Exposure will continue on 05/24/2016	<input type="checkbox"/>
BP	5/24/2016	1045	Samples placed back into chamber to resume exposure. Begin transitioning chamber to +60°C.	<input type="checkbox"/>
BP	5/24/2016	1120	The chamber has reached +60°C. Begin remaining 743 hours exposure.	<input type="checkbox"/>

Initials	Date	Time	Notes	Photo
BP	5/24/2016	1530	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	5/25/2016	0731	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/25/2016	1541	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/26/2016	0741	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/26/2016	1352	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/27/2016	0730	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/27/2016	1517	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	5/28/2016	0745	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/29/2016	0806	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/30/2016	0740	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	5/31/2016	0745	The chamber is at +60°C. Chart paper changed. Continue exposure.	<input type="checkbox"/>
BP	5/31/2016	1533	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/1/2016	0730	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/1/2016	1525	The chamber is at +61°C. Continue exposure.	<input type="checkbox"/>
BP	6/2/2016	0726	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/2/2016	1536	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/3/2016	0713	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/3/2016	1528	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/4/2016	0714	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/5/2016	0807	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/6/2016	0704	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/6/2016	1542	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/7/2016	0730	The chamber is at +60°C. Chart paper changed. Continue exposure.	<input type="checkbox"/>
BP	6/7/2016	1511	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/8/2016	0706	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/8/2016	1548	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/9/2016	0724	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/9/2016	1607	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/10/2016	0737	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/10/2016	1600	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/11/2016	0811	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/12/2016	0750	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/13/2016	0716	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/13/2016	1553	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/14/2016	0730	The chamber is at +60°C. Chart paper changed. Continue exposure.	<input type="checkbox"/>
BP	6/14/2016	1540	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/15/2016	0739	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/15/2016	1526	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>



Initials	Date	Time	Notes	Photo
BP	6/16/2016	0746	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/16/2016	1548	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/17/2016	0722	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/17/2016	1556	The chamber is at +61°C. Continue exposure.	<input type="checkbox"/>
BP	6/18/2016	0749	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/19/2016	0757	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/20/2016	0719	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/20/2016	1540	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/21/2016	0731	The chamber is at +59°C. Chart paper changed. Continue exposure.	<input type="checkbox"/>
BP	6/21/2016	1526	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/22/2016	0719	The chamber is at +59°C. Continue exposure.	<input type="checkbox"/>
BP	6/22/2016	1603	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/23/2016	0719	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/23/2016	1553	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/24/2016	0723	The chamber is at +60°C. Continue exposure.	<input type="checkbox"/>
BP	6/24/2016	0951	1000 hours of UV exposure complete, chamber shut off.	<input type="checkbox"/>
BP	6/24/2016	1002	Samples removed and photographed with no visible damage or fading on logo plate or decals on plastic sheet. There is a very light yellowing overall on clear plastic sheets with and without decals mostly visible along edge. Samples to be returned to customer for further evaluation.	<input checked="" type="checkbox"/>
			Test Complete	





Graphic Controls

DATE \_\_\_\_\_ NO. \_\_\_\_\_

-100 TO 200 8013

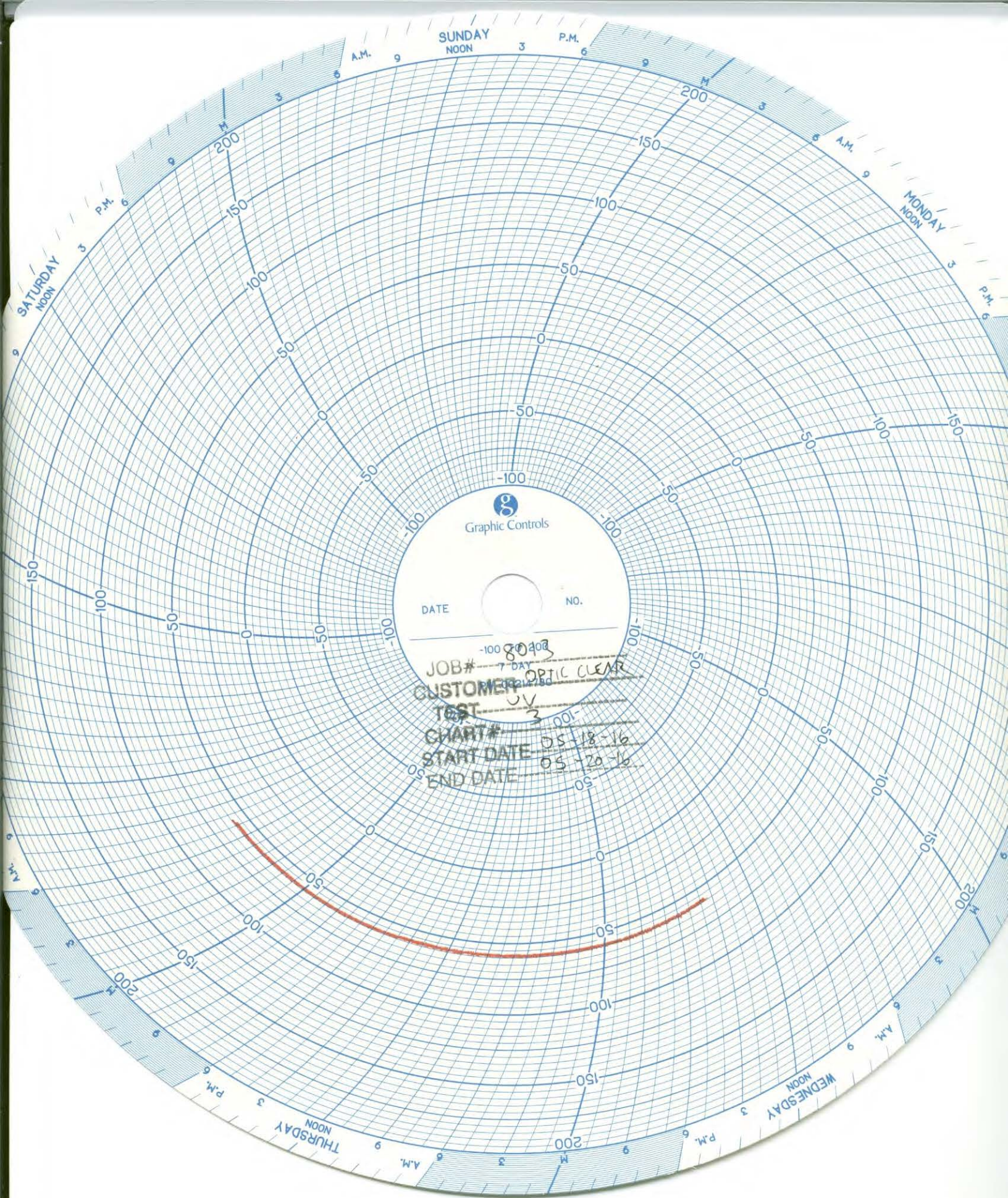
JOB# \_\_\_\_\_ 7 DAY \_\_\_\_\_  
CUSTOMER OPTIC CLEAR

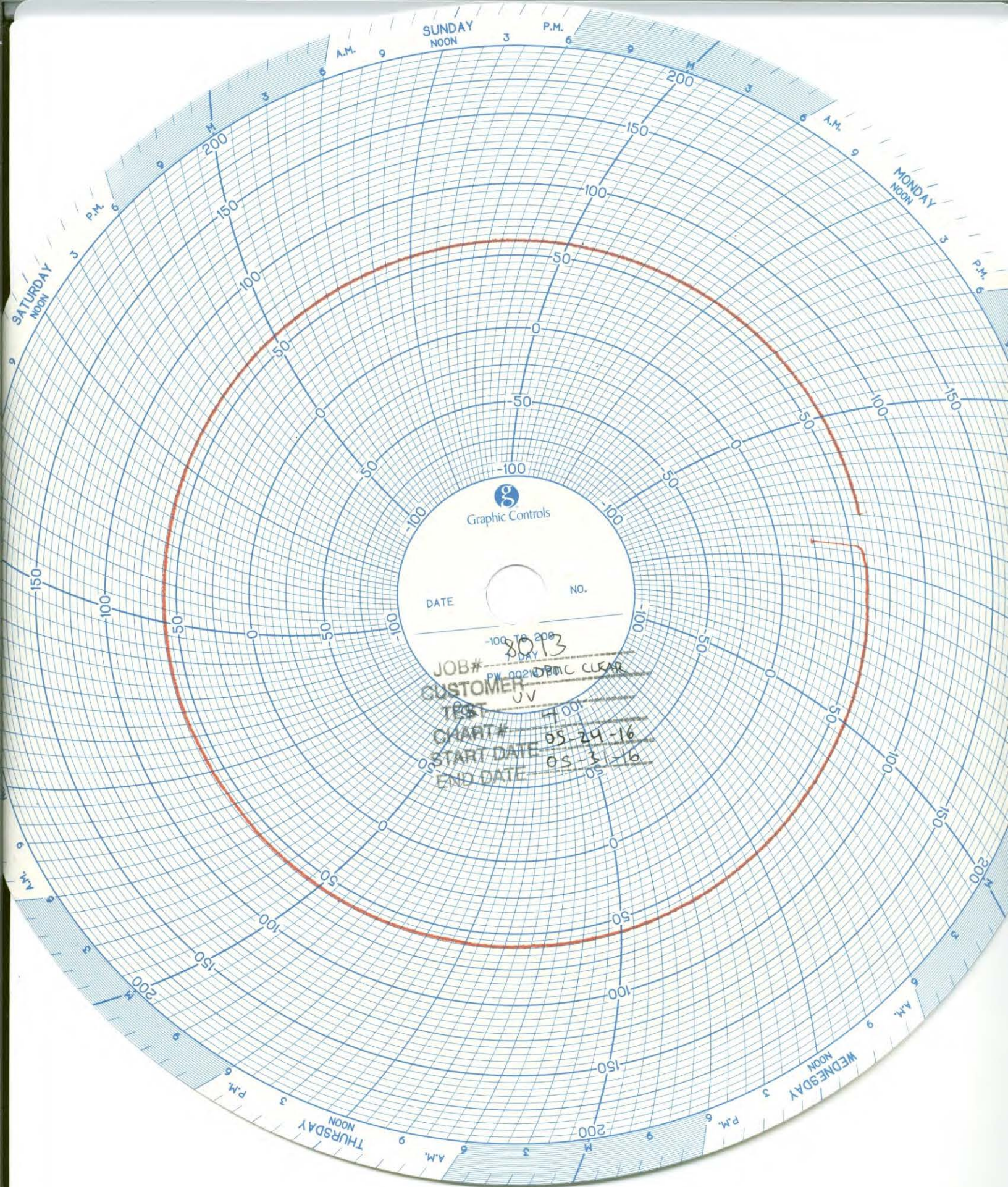
TEST UV

CHART# 5-11-16

START DATE 5-16-16

END DATE 5-16-16

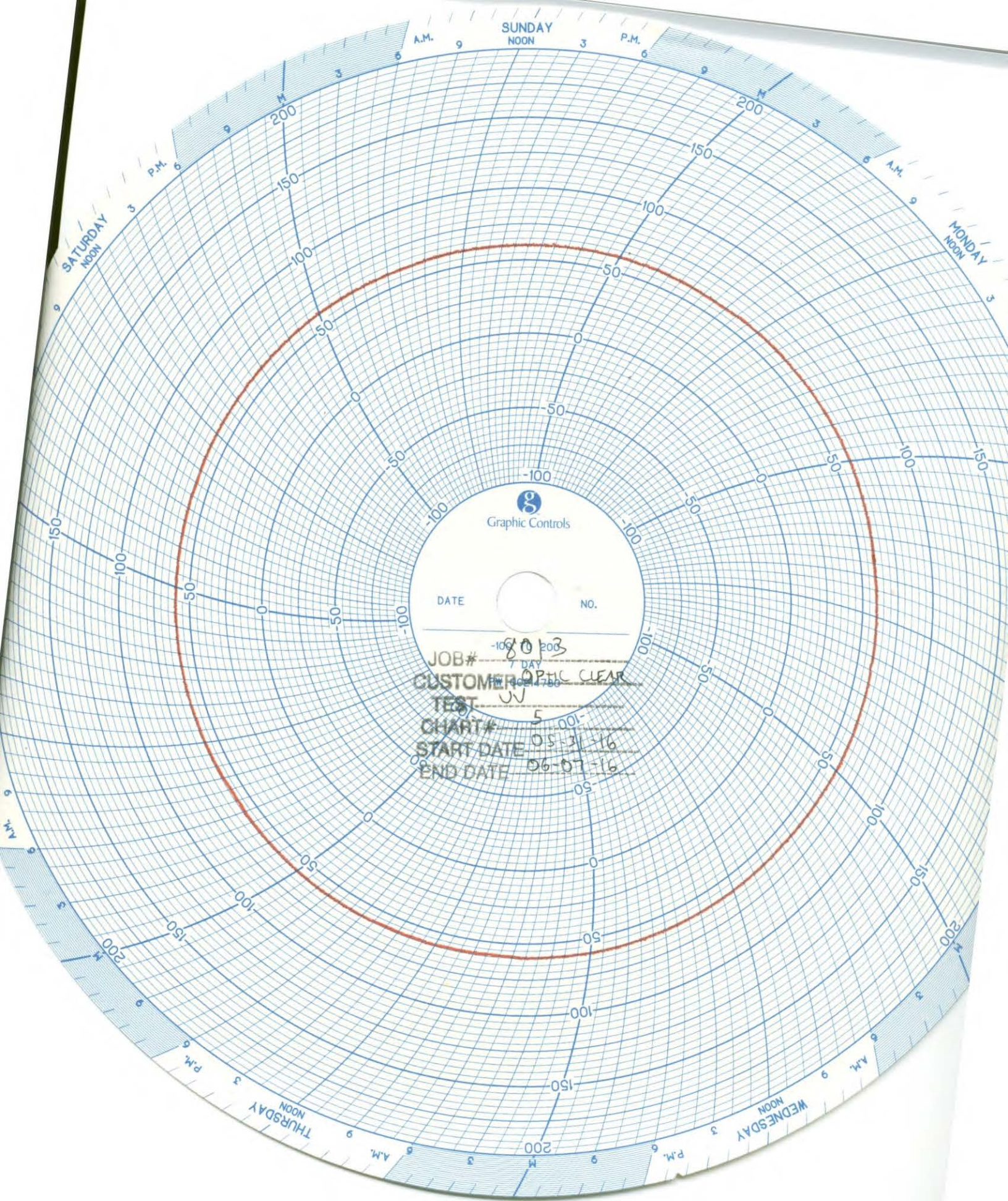




Graphic Controls

DATE \_\_\_\_\_ NO. \_\_\_\_\_

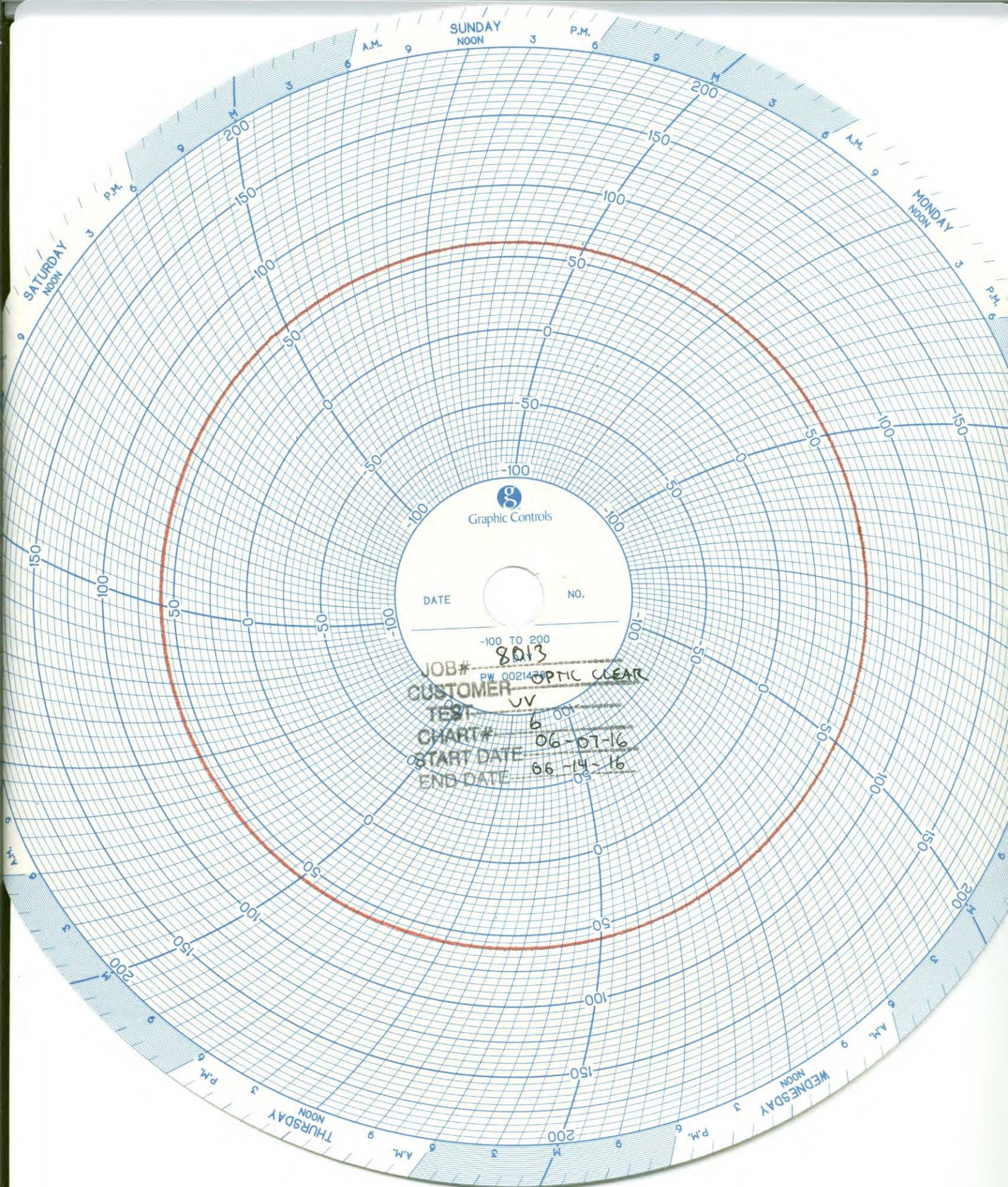
JOB# 8013  
 CUSTOMER PW 00210 OPTIC CLEAR  
 TEST JV  
 CHART# 400  
 START DATE 05-24-16  
 END DATE 05-31-16

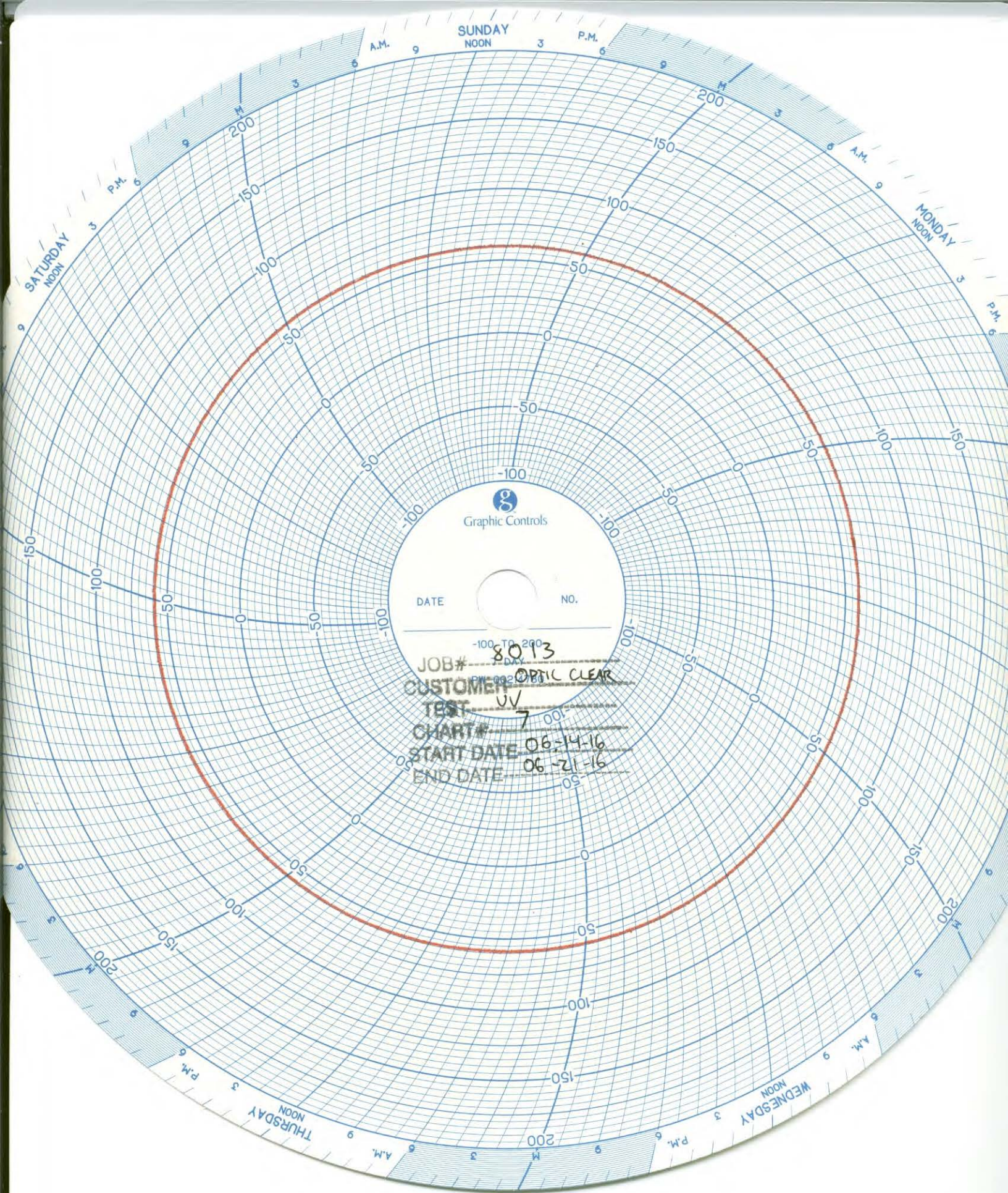


Graphic Controls

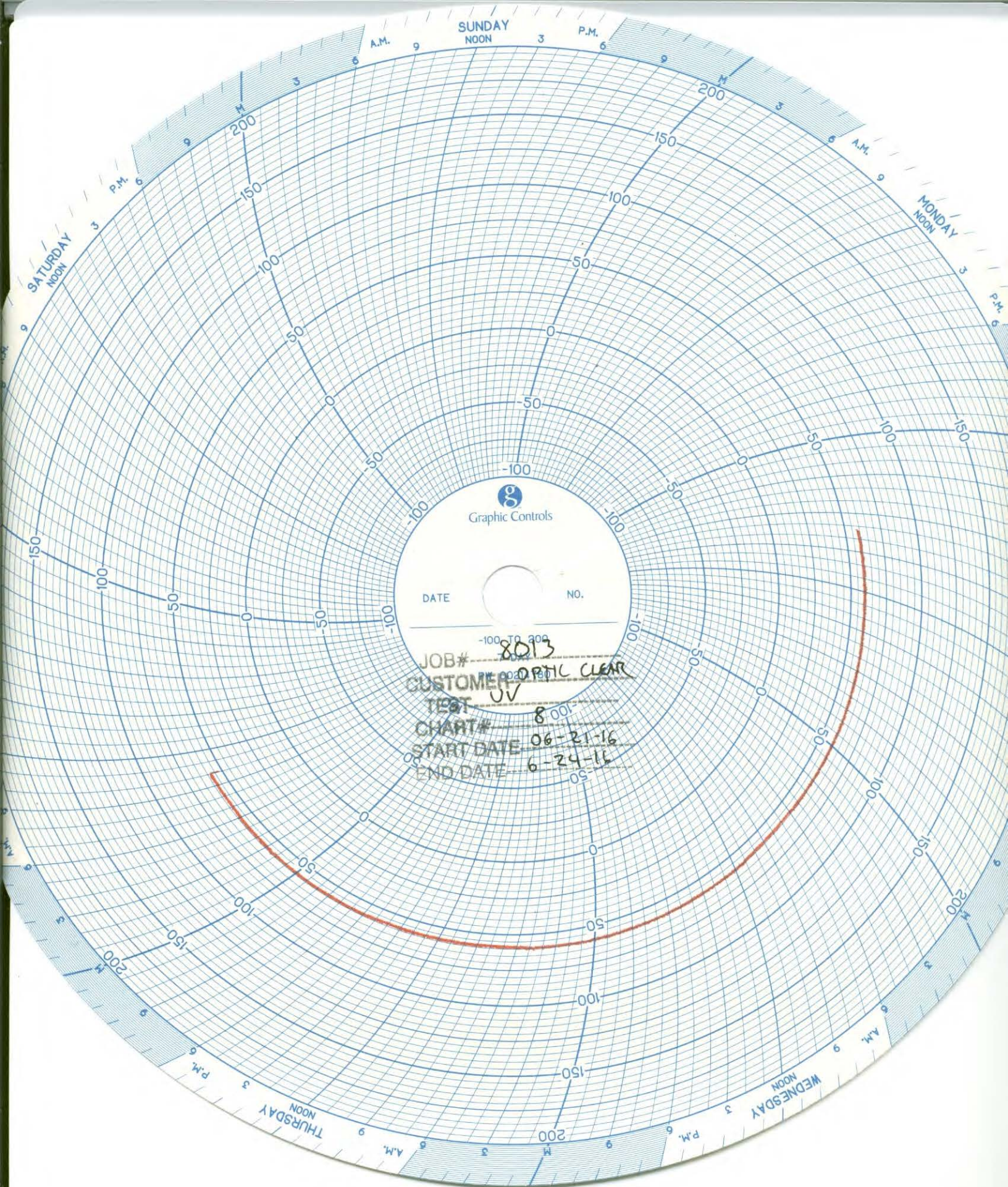
DATE NO.

JOB# 8013  
7 DAY  
CUSTOMER OPTIC CLEAR  
TEST JV  
CHART# 5  
START DATE 05-31-16  
END DATE 06-07-16









Graphic Controls

DATE NO.

JOB# 8013  
CUSTOMER ORTHO CLEAR  
TEST UV  
CHART# 8001  
START DATE 06-21-16  
END DATE 6-24-16



***Date: 05 - 04 - 16***

***Optic Clear Solutions***

***Job# 8013***

***UV Steady State***

2016.05.04



05 - 04

2016.05.04



**Date: 05 -04 -16**  
**Optic Clear Solutions**  
**Job# 8013**  
**UV Steady State**

2016.05.04



Printed on the CET Color Q5 Series UV Flatbed Printer

Date: 05 - 04 - 16

2016.05.04

**Date: 05 -04 -16**  
**Optic Clear Solutions**  
**Job# 8013**  
**UV Steady State**

2016.05.04

**Date:** 05 - 04 - 16

2016.05.04



Date: 05-04-16  
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 UV Steady State



2016.05.04





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UV Steady State

2016.05.04

Date: 06 -24 -16  
Optic Clear Solutions  
Job# 8013  
UV Steady State  
Post-Exposure



2016.06.24

Date: 06 -24 -16  
Optic Clear Solutions  
Job# 8013  
UV Steady State  
Post-Exposure

OCS  
Optic Clear Solutions

2016.06.24



**Date: 06 -24 -16**

**Optic Clear Solutions**

**Job# 8013**

**UV Steady State**

**Post-Exposure**

2016.06.24



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Optic Clear Solutions

2016.06.24



Printed on the CET Color Q5 Series UV Flatbed Printer

**Date: 06 -24 -16**  
**Optic Clear Solutions**  
**Job# 8013**  
**UV Steady State**  
**Post-Exposure**

2016.06.24



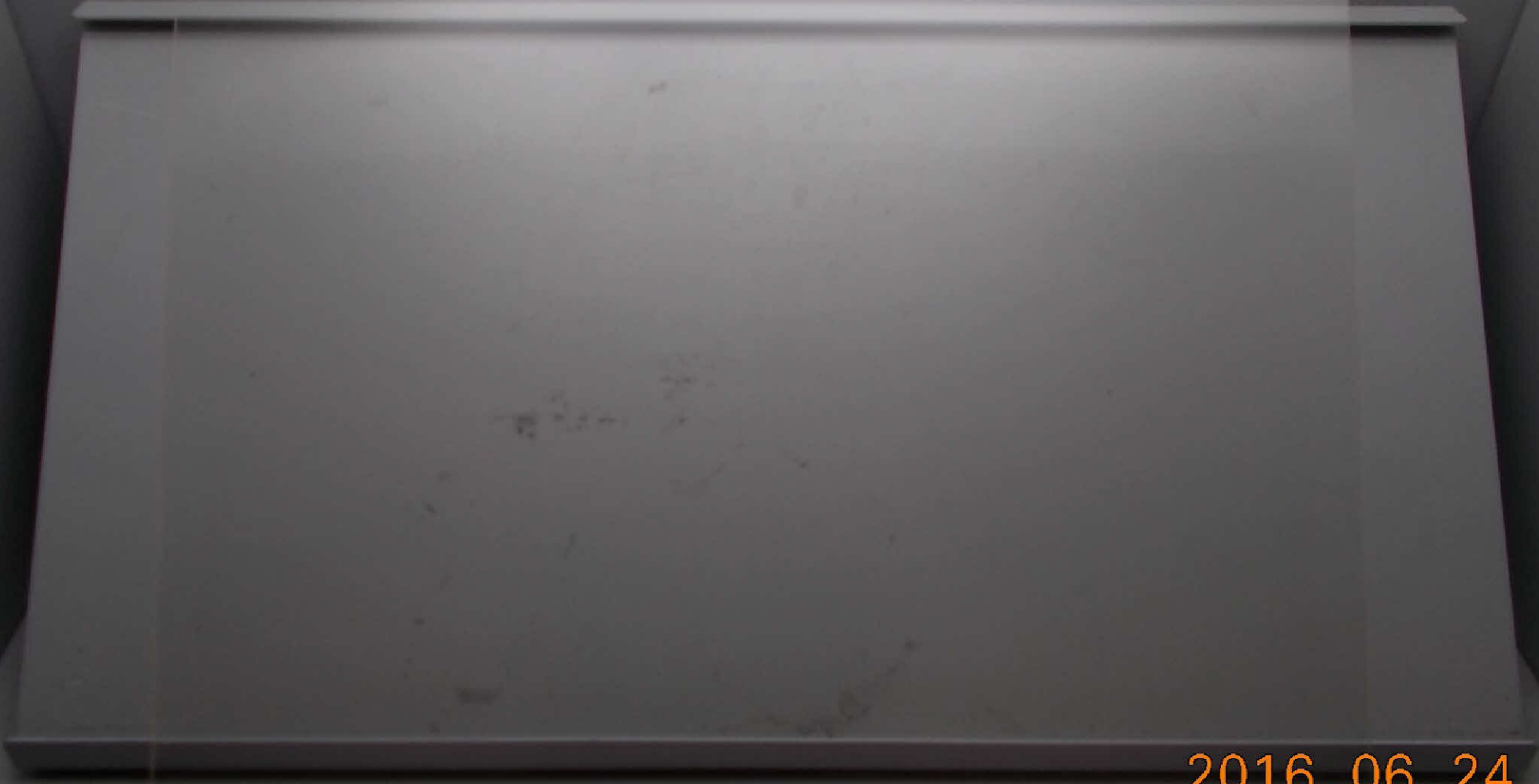
2016.06.24



Date: 06 -24 -16  
Optic Clear Solutions  
Job# 8013  
UV Steady State  
Post-Exposure

2016.06.24





2016.06.24

2016.06.24.10

**Date: 06 .**

2016 . 06 . 24

**Notice Closed**

06 -24 -16

**Clear Solutions**

2016.06.24

013