



Project Number: SAFN10026 Customer: American Ultraviolet
 Product Description: Germicidal Utility Fixture Model/Type: n/a
 Document: SF5.10-003 Rev. 0
 Date: 7/13/17

ENVIRONMENTAL TEST REPORT

Equipment or Devices for use in
 Specific Application Environment

Test Report Number: R170713
Certificate Number: C170713

Customer

Manufacturer: American Ultraviolet
 Address: 212 S. Mt. Zion Rd.
Lebanon, IN 46052



Testing Information:

Test Requested: IP55
 First Characteristic Numeral: 5
 Second Characteristic Numeral: 5
 Product Category: Enclosures, Electrical Equipment
 Testing Standard: IEC60529 Edition: 2.1 Dated: 2002
 Date of Receipt: 6/28/17
 Date of Testing: 7/10/17-7/12/17

Equipment Under Test (EUT) Details:

Product Description: Germicidal Utility Fixture
 Product Family: n/a
 Model/Type: Not provided
 Serial Number(s): n/a
 Quantity: 2
 Electrical Ratings: 120V
 Dimensions: 36x5x4"

Evaluation Information:

Testing Engineer: Josh Hunt Signature:  Date: 7/13/17
 Reviewing Engineer: Jeff Howell Signature:  Date: 7/13/17

Test Procedure Reference: (All testing has been done in accordance with the following work instructions.)

Test Procedure Number: SW5.4.1-30

Test Results: Please see the following 8 pages

CERTIFIGROUP

Regulatory Compliance Specialists



Project Number:	<u>SAFN10026</u>	Customer:	<u>American Ultraviolet</u>
Product Description:	<u>Germicidal Utility Fixture</u>	Model/Type:	<u>n/a</u>
Document:	<u>SF5.10-003</u> Rev.		<u>0</u>
Date:	<u>7/13/17</u>		

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CERTIFIGROUP

Regulatory Compliance Specialists

901 Sheldon Drive, Cary, NC 27513 Ph: 800-422-1651 Fax: (919) 228-4065



Project Number: SAFN10026 Customer: American Ultraviolet
 Product Description: Germicidal Utility Fixture Model/Type: n/a
 Document: SF5.10-003 Rev. 0
 Date: 7/13/17

Test Condition for protection against water

Test Rating: IPX5 (Protected against water jets)
 Test Standard Reference: Sec. 14.2.5 (Test for second characteristic numeral 5 with the 6.3 mm nozzle)
 Description of Test: EUT is subjected to a jet of water from all directions.
 Test Duration: 1 min/m² or a minimum of 3 minutes.
 Flow Rate: 12.5 l/min ± 5%
 Nozzle Diameter: 6.3 mm
 Distance to EUT: 2.5 – 3 m
 Sample Orientation: Horizontal, Vertical, or Intended Mounting Position

Test Results:

Test Standard Reference: Sec. 14.3 (Acceptance conditions)

Acceptance Criteria: It is the responsibility of the relevant technical committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.

In general, if any water has entered, it shall not:

- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.

For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.

Were water deposits found inside the EUT?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Is water entry sufficient to interfere with correct operation or impair safety?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has water deposited on insulation parts which could reduce creep age distances?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has water accumulated on a live part?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has water accumulated near a cable end or entered the cable if any?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>

Compliance:
 YES / NO

Inspection Notes/Comments: Unit successfully passed hipot test after water spray. No trace of water was found inside the electrical compartment.



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Test Condition for protection against solid foreign objects

Test Rating: IP5X (Dust Protected)
 Test Standard Reference: Sec. 13.4 (Dust test for first characteristic numerals 5 and 6)
 Sec. 13.5.1 (Test conditions for first characteristic numeral 5)
 Description of Test: EUT is mounted within a chamber while dust is maintained in suspension.
 Dust Medium: Talcum Powder
 Amount of Dust: 5 kg
 Chamber Size: 2.5 m³
 Test Duration: 8 hours
 Sample Orientation: Horizontal

Test Results:

Test Standard Reference: 13.5.2 (Acceptance conditions for first characteristic numeral 6)
 Acceptance Criteria: The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety. Except for special cases to be clearly specified in the relevant product standard, no dust shall deposit where it could lead to tracking along the creepage distances.

Were dust deposits found inside the EUT?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Is dust entry sufficient to interfere with correct operation or impair safety?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has dust deposited on insulation parts which could reduce creepage distances?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has dust accumulated on a live part?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Has dust accumulated near a cable end or entered the cable if any?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>

Compliance:
 YES / NO

Inspection Notes/Comments: No trace of dust deposits were found within. Unit was fully operational.

IP55 Test Photos:



Figure 1: EUT Testing

Figure 2: EUT Testing

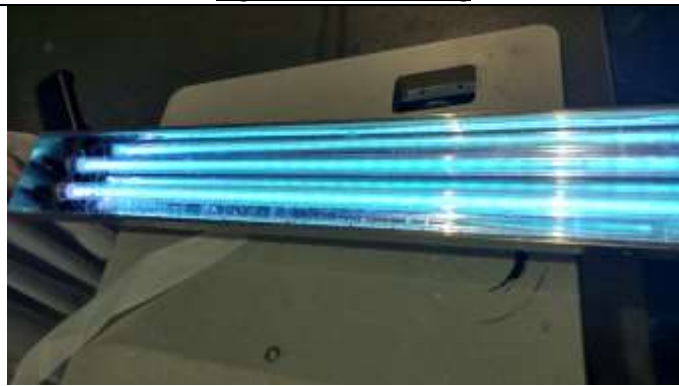


Figure 3: EUT Testing

Figure 4: EUT Testing

IP55 Test Photos:



Figure 5: EUT Inspection



Figure 6: EUT Inspection



Figure 7: EUT Testing



Figure 8: EUT Inspection



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Atmospheric Conditions for water or dust tests (IEC 60529)

Standard Reference Sec. 11.1 (Atmospheric conditions for water or dust tests)
 Recommended Temperature 15° C to 35° C
 Relative Humidity 25% to 75%

Environmental Testing Lab Conditions

Air Temperature 22.3° C
 Relative Humidity 49.0%

Calibrated Test Equipment

Asset #	Test Equipment	Manufacturer	Model#	Serial #	Calibration Due Date
2591	JET (IP)	ED&D	JET03/-6K	W01400363	5/3/2018
4128	Stop Watch - Wet lab	Control Company	1030	S10470408	10/6/2017
1976	Dust Chamber	ED&D	DTC-4000	W12050135	5/18/2018

End of Report



AT-1425

INGRESS PROTECTION TESTING AND EXAMINATION CERTIFICATE

Equipment or Devices for use in Specific Application Environment

Ingress Protection Examination Certificate: C170713
Test Report: R170713
Applicant/Manufacturer: American Ultraviolet
Address: 212 S. Mt. Zion Rd.
Lebanon, IN 46052
Equipment or Device Category: Enclosures, Electrical Equipment
Equipment or Device Model/Type: Germicidal Utility Fixture. No model provided.

This Equipment or device and any acceptable variation thereto are specified in the report to this certificate on the preceding 7 pages.

The Certification Services Certified that this equipment or device has been found to comply by "Type-Tests" for the Ingress Protection (IP) Requirements relating to the design and construction of the equipment submitted by Applicant to CertifiGroup.

Compliance has been established by testing under the requested Standard:

Testing Standard: IEC60529

Ingress Protection Code (IP Code) achieved by testing under the above Standard(s) for this Equipment or Device of the same design and construction shall be eligible to include the following marking:

"IP5X", "IPX5", or "IP55"

This Certification Certificate may only be reproduced in its entirety and without any change.

CertifiGroup Environmental Certification Services
901 Sheldon Dr. Cary, NC 27513
Ph : 800-422-1651 Fax : (919) 228-4065



Customer Satisfaction Survey

We appreciate your business and value your opinion. In an effort to serve you better, we ask that you please take a few minutes to let us know how we are doing and note any area that you feel could use some improvement.

Which one of our services did you use? (check all that apply)

IP Testing
 NEMA
 Consulting
 Other _____

Please Rate the following:	Very Dissatisfied ←			→ Very Satisfied	
Professionalism of the Receptionist	1	2	3	4	5
Phone System – Ease of Use	1	2	3	4	5
Helpfulness of Office Staff	1	2	3	4	5
Marketing/Sales					
Fulfillment of Information Requested	1	2	3	4	5
Clarity of Information Received	1	2	3	4	5
Timeliness & Clarity of Quote	1	2	3	4	5
Technical/Auditing Services					
Professionalism of Engineering Staff	1	2	3	4	5
Ease of Reaching Engineering Staff Via Telephone	1	2	3	4	5
Project Turnaround Time	1	2	3	4	5
Communications were clear, timely and effective	1	2	3	4	5
Documentation					
Quality of Documentation (test reports, certificate, etc.)	1	2	3	4	5
Timeliness of Report Issuance	1	2	3	4	5
Invoices					
Accuracy	1	2	3	4	5
Clarity	1	2	3	4	5
Timeliness of Projects Being Invoiced Upon Their Completion	1	2	3	4	5
Compared to other agencies, how would you rate the amount of paperwork that we require for a project?	More		Same	Less	
	1	2	3	4	5
OVERALL SATISFACTION WITH CERTIFIGROUP	1	2	3	4	5

Do you have a specific suggestion on how we can serve you better?

If there is a particular issue that you would like to discuss personally, please write your name, title, and phone number and we will contact you.

Company: American Ultraviolet

Project # SAFN10026

Thank you for your time and help. Please fax survey to (919) 228-4065

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