

PHOENIX PRODUCTS LLC

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

CF-375-WF-120-277-CW

PROJECT NUMBER

G104357589

REPORT NUMBER

104357589CHI-021

ISSUE DATE

1/22/2021

REVISED DATE

None

TEST DATES

01/22/2021.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104357589CHI-021

MODEL NUMBER(s)

CF-375-WF-120-277-CW

REPORT RENDERED TO:

PHOENIX PRODUCTS LLC
8711 W PORT AVE.
MILWAUKEE, WI, 53224
USA

STATEMENT OF LIMITATION

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-01080058-1.

TEST STANDARDS

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

In Charge of Testing:



Ian Smith
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION

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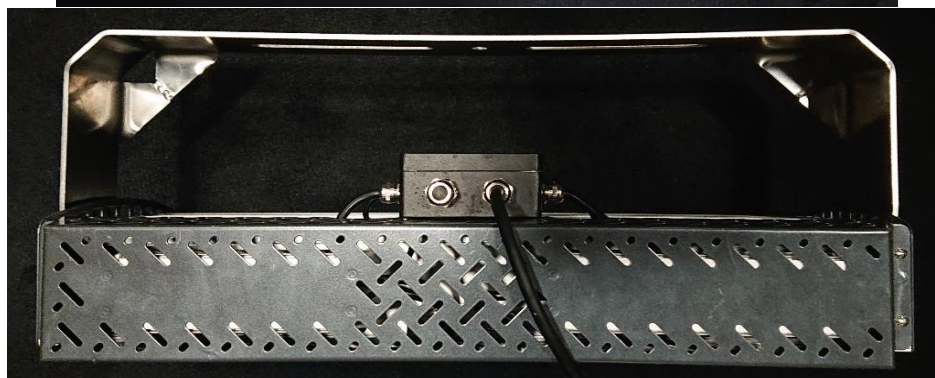
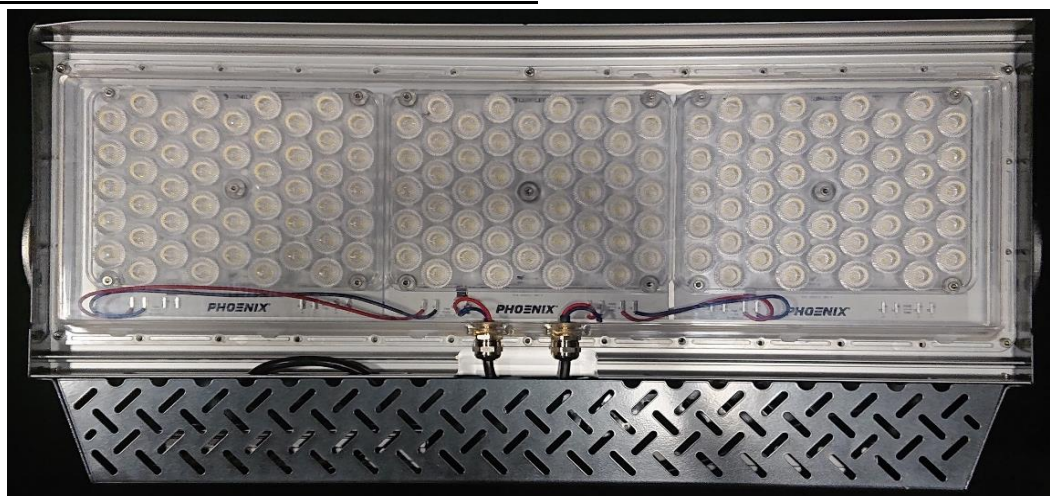
ITEMS RECEIVED

| Item No. | Control No. | Model No. | Description | Type | Received |
|----------|------------------|----------------------|-------------------|------------|-----------|
| 1 | AH01112021101748 | CF-375-WF-120-277-CW | Command Flood 375 | Production | 1/12/2021 |

TESTED SAMPLE CONFIGURATIONS

| Config No. | Tested Model No. | Item Nos. Utilized |
|------------|----------------------|--------------------|
| 1 | CF-375-WF-120-277-CW | 1 |

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

| | |
|----------------------|--|
| Product Model No.: | CF-375-WF-120-277-CW |
| Product Description: | Command Flood 375 |
| LED Model No.: | Lumileds 5050 |
| Driver Model No.: | Inventronics / EUM-240S350DT & EUM-150S210DT |
| Light Source: | LED |

| Criteria | Results |
|------------------------------------|---------|
| Light Output (lumens) | 45970.5 |
| Input Power (W) @ 120 (Vac) | 354.38 |
| Lumen Efficacy (lm/W) | 129.7 |
| Input Power Factor () @ 120 (Vac) | 0.999 |

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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| Test Configuration | Tested Model No. | Pass/Fail/NA |
|--------------------|----------------------|--------------|
| 1 | CF-375-WF-120-277-CW | NA |

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

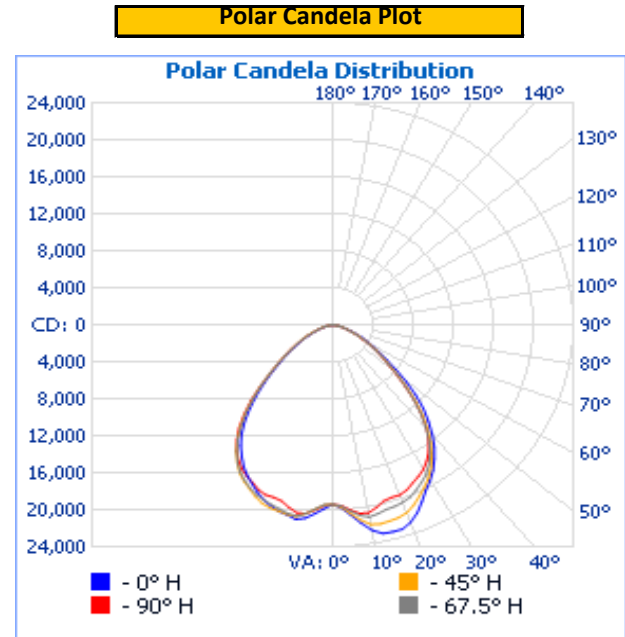
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor (I) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Up | 120.0 | 2955.7 | 354.38 | 0.999 |

| Light Output (lm) | Lumen Efficacy (lm/W) |
|-------------------|-----------------------|
| 45970.5 | 129.7 |

INTENSITY SUMMARY - CANDELA

| Angle | 0 | 25 | 45 | 67.5 | 90 |
|-------|-------|-------|-------|-------|-------|
| 0 | 19418 | 19418 | 19418 | 19418 | 19418 |
| 5 | 20637 | 20796 | 20492 | 20214 | 20092 |
| 10 | 22542 | 22336 | 21918 | 21092 | 20632 |
| 15 | 23166 | 22514 | 21954 | 20660 | 19713 |
| 20 | 22712 | 22175 | 21606 | 20425 | 19563 |
| 25 | 21071 | 20758 | 20435 | 19701 | 18866 |
| 30 | 19426 | 19398 | 19126 | 18643 | 18064 |
| 35 | 17688 | 17523 | 17244 | 16943 | 16686 |
| 40 | 15428 | 15070 | 14725 | 14443 | 14538 |
| 45 | 12794 | 11947 | 11698 | 11462 | 11514 |
| 50 | 9587 | 8675 | 8507 | 8352 | 8185 |
| 55 | 6564 | 6174 | 6105 | 5914 | 5895 |
| 60 | 4661 | 4354 | 4389 | 4137 | 4119 |
| 65 | 3185 | 3046 | 2943 | 2791 | 2745 |
| 70 | 1899 | 1828 | 1786 | 1664 | 1569 |
| 75 | 1128 | 1065 | 1051 | 994 | 893 |
| 80 | 568 | 519 | 524 | 504 | 427 |
| 85 | 172 | 141 | 156 | 164 | 128 |
| 90 | 0 | 0 | 0 | 0 | 0 |
| 95 | 0 | 0 | 0 | 0 | 0 |
| 100 | 0 | 0 | 0 | 0 | 0 |
| 105 | 0 | 0 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 | 0 |
| 115 | 0 | 0 | 0 | 0 | 0 |
| 120 | 0 | 0 | 0 | 0 | 0 |
| 125 | 0 | 0 | 0 | 0 | 0 |
| 130 | 0 | 0 | 0 | 0 | 0 |
| 135 | 0 | 0 | 0 | 0 | 0 |
| 140 | 0 | 0 | 0 | 0 | 0 |
| 145 | 0 | 0 | 0 | 0 | 0 |
| 150 | 0 | 0 | 0 | 0 | 0 |
| 155 | 0 | 0 | 0 | 0 | 0 |
| 160 | 0 | 0 | 0 | 0 | 0 |
| 165 | 0 | 0 | 0 | 0 | 0 |
| 170 | 0 | 0 | 0 | 0 | 0 |
| 175 | 0 | 0 | 0 | 0 | 0 |
| 180 | 0 | 0 | 0 | 0 | 0 |

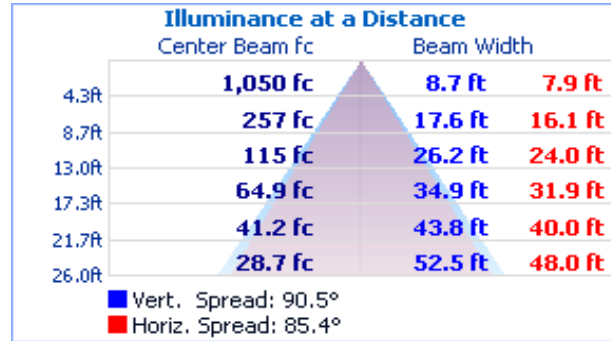
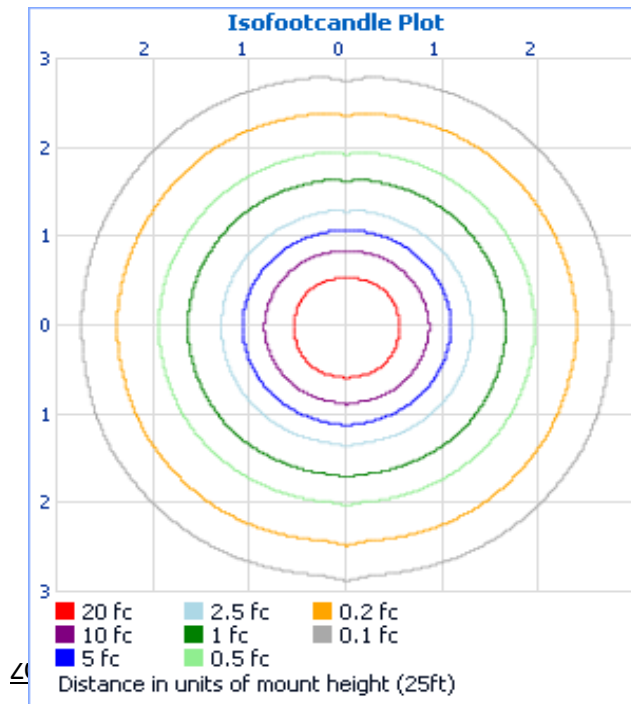
Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY

| Mounting Height: 25ft | |
|-----------------------------|----------------------|
| Illuminance - Cone Of Light | Isoillumination Plot |



Zonal Lumen Summary

| Zone | Lumens | Luminaire |
|--------|----------|-----------|
| 0-30 | 17,081.1 | 37.2% |
| 0-40 | 27,573.7 | 60.0% |
| 0-60 | 41,814.4 | 91.0% |
| 60-90 | 4,156.1 | 9.0% |
| 70-100 | 1,305.6 | 2.8% |
| 90-120 | 0.0 | 0.0% |
| 0-90 | 45,970.5 | 100.0% |
| 90-180 | 0.0 | 0.0% |
| 0-180 | 45,970.5 | 100.0% |

| Zone | Lumens | Total | Zone | Lumens | Total |
|-------|---------|-------|---------|--------|-------|
| 0-10 | 1977.1 | 4.3% | 90-100 | 0.0 | 0.0% |
| 10-20 | 5986.1 | 13.0% | 100-110 | 0.0 | 0.0% |
| 20-30 | 9117.9 | 19.8% | 110-120 | 0.0 | 0.0% |
| 30-40 | 10492.6 | 22.8% | 120-130 | 0.0 | 0.0% |
| 40-50 | 8831.7 | 19.2% | 130-140 | 0.0 | 0.0% |
| 50-60 | 5409.0 | 11.8% | 140-150 | 0.0 | 0.0% |
| 60-70 | 2850.6 | 6.2% | 150-160 | 0.0 | 0.0% |
| 70-80 | 1101.0 | 2.4% | 160-170 | 0.0 | 0.0% |
| 80-90 | 204.6 | 0.4% | 170-180 | 0.0 | 0.0% |

LUM. CLASSIFICATION SYSTEM (LCS)

| CS Zone | Lumens | % Lamp | % Lum |
|--------------|----------|--------|-------|
| FL (0-30) | 8716.0 | N.A. | 19.0 |
| FM (30-60) | 12589.0 | N.A. | 27.4 |
| FH (60-80) | 2005.0 | N.A. | 4.4 |
| FVH (80-90) | 103.3 | N.A. | 0.2 |
| BL (0-30) | 8366.2 | N.A. | 18.2 |
| BM (30-60) | 12158.0 | N.A. | 26.4 |
| BH (60-80) | 1948.3 | N.A. | 4.2 |
| BVH (80-90) | 101.3 | N.A. | 0.2 |
| UL (90-100) | 0.0 | N.A. | 0.0 |
| UH (100-180) | 0.0 | N.A. | 0.0 |
| Total | 45987.1 | N.A. | 100.0 |
| BUG Rating | B5-U0-G2 | | |

IES Classification: Type VS
Longitudinal Classification: Very Short

EQUIPMENT LIST

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| # | Equipment | Model No | Control No. | Last Cal | Cal Due |
|----|----------------------------------|-----------|-------------|-----------|-----------|
| 1 | Yokogawa Power Meter | WT210 | 146919 | 7/1/2020 | 7/1/2021 |
| 2 | Omega Thermometer | DPI8-C24 | 146920 | 10/1/2020 | 10/1/2021 |
| 3 | LSI High Speed Mirror Goniometer | 6440T | 146928 | VBU | VBU |
| 4 | Newport Thermohygrometer | iServer | 146958 | 9/30/2020 | 9/30/2021 |
| 5 | Pacific AC Power Supply | 118-ACX | CHI0153 | VBU | VBU |
| 6 | Sorenson DC Power Supply | XHR 150-7 | 146922 | VBU | VBU |
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Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

| # | Revision Date | Updated By | Reviewed By | Description of Change |
|-----|---------------|------------|-------------|-----------------------|
| --- | None | --- | --- | --- |
| --- | --- | --- | --- | --- |
| --- | --- | --- | --- | --- |