

SONNEMAN - A Way of Light

TEST REPORT

SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA test standard.

MODEL NUMBER

2772

PROJECT NUMBER

G103703321

REPORT NUMBER

103703321CRT-068

ISSUE DATE

February 26, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2019 INTERTEK



TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

TEST OF (1) STIX 40" LED BATH BAR

MODEL NO. 2772

RENDERED TO:

SONNEMAN - A WAY OF LIGHT
151 AIRPORT DRIVE
WAPPINGERS FALLS, NY 12590

STATEMENT OF LIMITATION

NVLAP Lab Code 100402-0. 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-00932265.

STANDARDS USED

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

SAMPLE INFORMATION

| CONTROL NO. | MODEL/SERIAL NO. | DESCRIPTION | TYPE | RECEIVED |
|-------------------|------------------|-----------------------|------------|-----------|
| CRT1902180859-001 | 2772 | Stix 40" LED Bath Bar | Production | 2/18/2019 |

DATE OF TESTS

February 25, 2019.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

SUMMARY

| | |
|-------------------------|-----------------------|
| MODEL NO: | 2772 |
| DESCRIPTION: | Stix 40" LED Bath Bar |
| DRIVER MODEL NO: | LTF TA60WA12LED |

| CRITERIA | RESULTS |
|------------------------------------|---------|
| Lumen Output (lumens) | 1080.1 |
| Input Power (W) @ 120 (VAC) | 30.02 |
| Lumen Efficacy (lm/W) | 36.0 |
| Input Power Factor () @ 120 (VAC) | 0.950 |

EQUIPMENT LIST

| EQUIPMENT USED | MODEL NO. | CONTROL NO. | CAL DUE DATE | DATE USED |
|---|------------|-------------|--------------|-----------|
| LSI High Speed Mirror Goniometer | 6440 | --- | 3/11/2019 | 2/25/2019 |
| Elgar AC Power Supply | CW1251 | --- | VBU | 2/25/2019 |
| Sorenson DC Power Supply | XG 150-10 | --- | VBU | 2/25/2019 |
| Yokogawa Power Analyzer | WT210 | E464 | 5/3/2019 | 2/25/2019 |
| Omega Thermometer | DPi8-C24 | M263 | 5/3/2019 | 2/25/2019 |
| M-D Building Products Digital Level | Smart Tool | L112 | 4/21/2019 | 2/25/2019 |
| NIST Luminous Intensity Standard Source | NBS10322 | N1427 | 1/9/2019 | 2/25/2019 |
| NIST Luminous Intensity Standard Source | NBS10332 | N1435 | 1/9/2019 | 2/25/2019 |
| NIST Luminous Intensity Standard Source | NBS10265 | N1437 | 1/9/2019 | 2/25/2019 |
| NIST Luminous Flux Standard Source | NBS10428 | N1424 | 1/11/2019 | 2/25/2019 |

*Note: Calibration of goniometer system was completed before the calibration due date of the lamps. The calibration file created from these NIST traceable lamps was used on 2/25/19

TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

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

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD

A Type C Mirror Goniometer was used to measure the intensity (candela) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

The calibration of the goniometer-photometer system is traceable to the National Institute of Standards and Technology.

TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

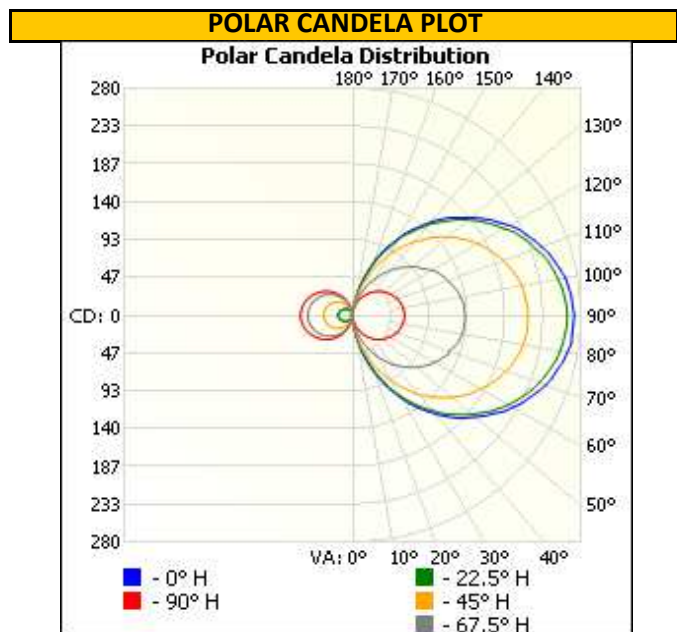
RESULTS OF TESTS

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

| INTERTEK CONTROL NO. | BASE POSITION | INPUT VOLTAGE (VAC) | INPUT CURRENT (mA) | INPUT POWER (W) | INPUT POWER FACTOR () | LIGHT OUTPUT (lm) | LUMEN EFFICACY (lm/W) |
|----------------------|---------------|---------------------|--------------------|-----------------|------------------------|-------------------|-----------------------|
| CRT1902180859-001 | Base Up | 120.00 | 263.3 | 30.02 | 0.950 | 1080.1 | 36.0 |

INTENSITY SUMMARY - CANDELA

| Angle | 0 | 22.5 | 45 | 67.5 | 90 |
|-------|-----|------|-----|------|----|
| 0 | 1 | 1 | 1 | 1 | 1 |
| 5 | 10 | 10 | 8 | 5 | 3 |
| 10 | 29 | 27 | 21 | 13 | 7 |
| 15 | 50 | 48 | 38 | 23 | 12 |
| 20 | 72 | 70 | 56 | 34 | 18 |
| 25 | 95 | 92 | 75 | 46 | 23 |
| 30 | 117 | 114 | 93 | 57 | 28 |
| 35 | 139 | 135 | 110 | 69 | 33 |
| 40 | 160 | 154 | 129 | 80 | 38 |
| 45 | 179 | 174 | 144 | 90 | 42 |
| 50 | 196 | 190 | 158 | 100 | 46 |
| 55 | 212 | 207 | 171 | 109 | 50 |
| 60 | 227 | 221 | 181 | 116 | 53 |
| 65 | 240 | 233 | 192 | 123 | 56 |
| 70 | 252 | 244 | 201 | 127 | 59 |
| 75 | 260 | 252 | 207 | 134 | 61 |
| 80 | 267 | 258 | 212 | 137 | 62 |
| 85 | 270 | 262 | 215 | 137 | 64 |
| 90 | 272 | 263 | 216 | 138 | 64 |
| 95 | 269 | 261 | 213 | 137 | 63 |
| 100 | 265 | 256 | 211 | 134 | 62 |
| 105 | 256 | 250 | 204 | 130 | 61 |
| 110 | 247 | 239 | 197 | 124 | 58 |
| 115 | 235 | 228 | 187 | 119 | 56 |
| 120 | 222 | 214 | 177 | 111 | 53 |
| 125 | 206 | 200 | 164 | 101 | 49 |
| 130 | 188 | 183 | 150 | 93 | 46 |
| 135 | 170 | 164 | 136 | 83 | 42 |
| 140 | 151 | 146 | 119 | 72 | 37 |
| 145 | 130 | 125 | 102 | 61 | 32 |
| 150 | 107 | 103 | 83 | 49 | 27 |
| 155 | 86 | 82 | 65 | 38 | 22 |
| 160 | 62 | 60 | 47 | 27 | 17 |
| 165 | 40 | 38 | 29 | 16 | 12 |
| 170 | 20 | 19 | 14 | 8 | 7 |
| 175 | 5 | 4 | 3 | 3 | 3 |
| 180 | 1 | 1 | 1 | 1 | 1 |



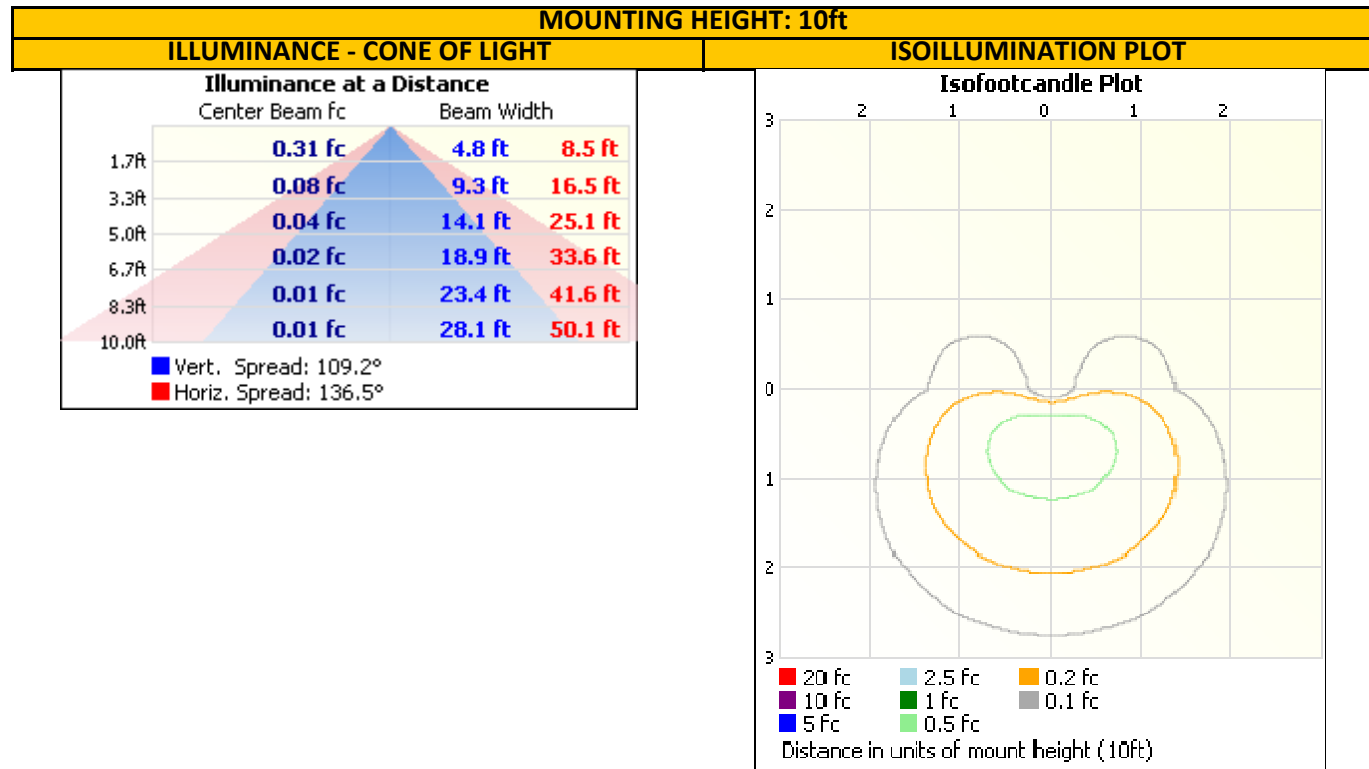
TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

RESULTS OF TESTS

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



ZONAL LUMEN SUMMARY AND PERCENTAGES

| ZONE | LUMENS | % LUMINAIRE |
|--------|--------|-------------|
| 0-30 | 25.7 | 2.4 |
| 0-40 | 62.9 | 5.8 |
| 0-60 | 203.4 | 18.8 |
| 60-90 | 344.6 | 31.9 |
| 0-90 | 548.0 | 50.7 |
| 90-180 | 532.1 | 49.3 |
| 0-180 | 1080.1 | 100.0 |

| ZONE | LUMENS | % LUMINAIRE |
|---------|--------|-------------|
| 0-10 | 0.7 | 0.1 |
| 10-20 | 6.2 | 0.6 |
| 20-30 | 18.8 | 1.7 |
| 30-40 | 37.2 | 3.4 |
| 40-50 | 59.1 | 5.5 |
| 50-60 | 81.5 | 7.5 |
| 60-70 | 101.7 | 9.4 |
| 70-80 | 117.2 | 10.9 |
| 80-90 | 125.6 | 11.6 |
| 90-100 | 125.0 | 11.6 |
| 100-110 | 115.7 | 10.7 |
| 110-120 | 99.6 | 9.2 |
| 120-130 | 78.7 | 7.3 |
| 130-140 | 56.2 | 5.2 |
| 140-150 | 34.7 | 3.2 |
| 150-160 | 16.8 | 1.6 |
| 160-170 | 5.1 | 0.5 |
| 170-180 | 0.5 | 0.0 |

TEST REPORT

REPORT NO.: 103703321CRT-068

REPORT DATE: February 26, 2019

PICTURES



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

Gerald Gray
Associate Engineer
Lighting Division

Report Reviewed By:

Jeff Davis
Engineering Supervisor
Lighting Division

Attachments: .IES File

REVISION HISTORY

| JOB NUMBER | DATE OF REVISION | PROJECT HANDLER | REVIEWED BY | REVISION NOTE |
|------------|------------------|-----------------|-------------|---------------|
| None | | | | |