



REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G102745412

Date: October 6, 2016

REPORT NO. 102745412LAX-015

TEST OF ONE LED MOVING HEAD BEAM

MODEL NO. SIX PAR Z19 IP RGBAW NO UV ZOOM OUT

RENDERED TO

ELATION LIGHTING
6122 S. EASTERN AVE.
COMMERCE, CA 90040

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

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00648726-1.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

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

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number SIX PAR Z19 IP RGBAW NO UV ZOOM OUT. The sample was received by Intertek on September 14, 2016, in undamaged condition and one sample was tested as received. The sample designation was LAN1609141019-004.

DATES OF TESTS: September 27, 2016



SUMMARY

| | |
|--------------|-------------------------------------|
| Model No.: | SIX PAR Z19 IP RGBAW NO UV ZOOM OUT |
| Description: | LED Moving Head Beam |

| Criteria | Result |
|-----------------------------|--------|
| Total Lumen Output (Lumens) | 2455 |
| Total Power (W) | 238.1 |
| Luminaire Efficacy (LPW) | 10.31 |
| Power Factor | 0.988 |

EQUIPMENT LIST

| Equipment Used | Model Number | Control Number | Last Date Calibrated | Calibration Due Date | Date Used |
|----------------------------------|--------------|----------------|----------------------|----------------------|-----------|
| LSI High Speed Mirror Goniometer | 6440T | 000943 | 09/12/16 | 10/12/16 | 09/27/16 |
| Elgar Power Supply | CW1251 | 000944 | VBU | VBU | 09/27/16 |
| Yokogawa Power Analyzer | WT210 | 000945 | 12/04/15 | 12/04/16 | 09/27/16 |
| Temp. & RH Meter | 971 | 001380 | 12/17/15 | 12/17/16 | 09/27/16 |
| Extech Instruments Stop Watch | 365510 | 001379 | 11/19/15 | 11/19/16 | 09/27/16 |
| Tape Measure | C1-25 | 000915 | 12/04/15 | 12/04/16 | 09/27/16 |
| Protractor | 33840 | 000087 | 12/22/15 | 12/22/16 | 09/27/16 |



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 LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

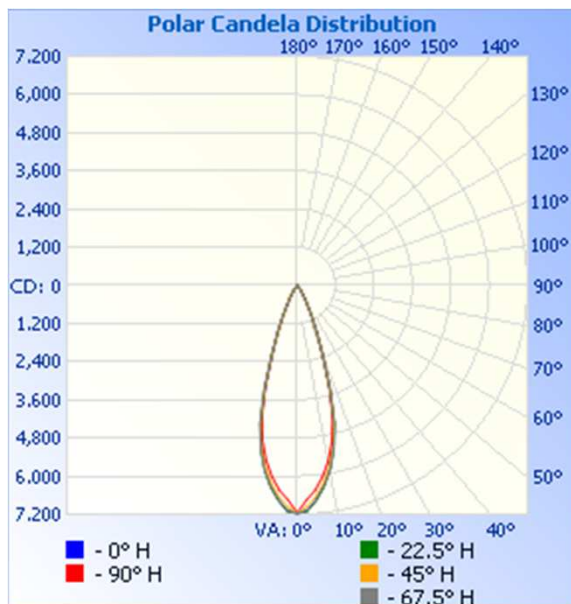
RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

| Intertek Sample No. | Base Orientation | Input Voltage {Vac} | Input Current (mA) | Input Power (Watts) | Input Power Factor | Absolute Luminous Flux (Lumens) | Lumen Efficacy (Lumens Per Watt) |
|---------------------|------------------|---------------------|--------------------|---------------------|--------------------|---------------------------------|----------------------------------|
| LAN1609141019-004 | UP | 120.0 | 1992 | 238.1 | 0.988 | 2455 | 10.31 |

Intensity (Candlepower) Summary at 25°C - Candelas

| Angle | 0 | 22.5 | 45 | 67.5 | 90 |
|-------|------|------|------|------|------|
| 0 | 7153 | 7153 | 7153 | 7153 | 7153 |
| 5 | 6765 | 6789 | 6663 | 6776 | 6456 |
| 10 | 5852 | 5883 | 5803 | 5898 | 5593 |
| 15 | 4445 | 4471 | 4412 | 4518 | 4268 |
| 20 | 2269 | 2341 | 2307 | 2383 | 2293 |
| 25 | 1072 | 1080 | 1048 | 1100 | 1053 |
| 30 | 437 | 475 | 479 | 480 | 470 |
| 35 | 196 | 197 | 205 | 211 | 201 |
| 40 | 69 | 83 | 83 | 88 | 87 |
| 45 | 26 | 21 | 19 | 26 | 25 |
| 50 | 0 | 0 | 0 | 0 | 0 |
| 55 | 0 | 0 | 0 | 0 | 0 |
| 60 | 0 | 0 | 0 | 0 | 0 |
| 65 | 0 | 0 | 0 | 0 | 0 |
| 70 | 0 | 0 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 |
| 80 | 0 | 0 | 0 | 0 | 0 |
| 85 | 0 | 0 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 0 | 0 |



RESULTS OF TEST

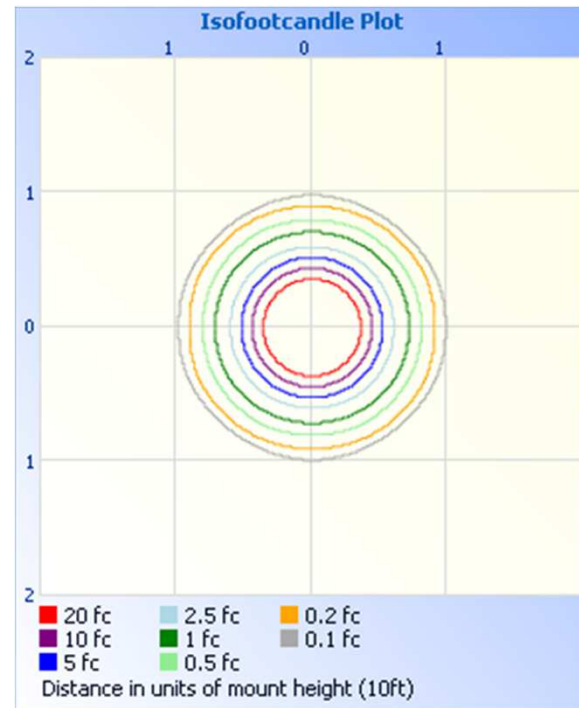
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

| Zone | Lumens | % Luminaire |
|--------|--------|-------------|
| 0-30 | 2293 | 93.4 |
| 0-40 | 2433 | 99.1 |
| 0-60 | 2455 | 100.0 |
| 60-90 | 0.0 | 0.0 |
| 0-90 | 2455 | 100.0 |
| 90-180 | 0.0 | 0.0 |
| 0-180 | 2455 | 100.0 |

Zonal Lumens and Percentages at 25°C

| Zone | Lumens | % Luminaire |
|-------|--------|-------------|
| 0-10 | 611.0 | 24.9 |
| 10-20 | 1156 | 47.1 |
| 20-30 | 525.4 | 21.4 |
| 30-40 | 139.9 | 5.7 |
| 40-50 | 22.7 | 0.9 |
| 50-60 | 0.0 | 0.0 |
| 60-70 | 0.0 | 0.0 |
| 70-80 | 0.0 | 0.0 |
| 80-90 | 0.0 | 0.0 |

PICTURE (not to scale)



CONCLUSION

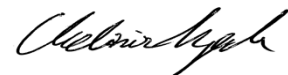
The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



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Report Reviewed By:



Vladimir Kozak
Engineering Supervisor
Lighting Division

Attachment: None