



## **PHOTOMETRIC EVALUATION OF AN LED STRIP LUMINAIRE**

**Model: Spyder – Wide Beam**

**Prepared for:**  
**Bill Dixon**

Beghelli North America  
3250 Corporate Way  
Miramar, FL 33025

Phone: 954-442-6600

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**Prepared by:**

A handwritten signature in black ink, appearing to read "John M. Behnken".

John Behnken, Project Engineer

**Approved by:**

A handwritten signature in black ink, appearing to read "Bryan Cubitt".

Bryan Cubitt, Technical Team Leader



## Program Description

Photometric Evaluation of a strip LED luminaire.

## Executive Summary

The following table provides a brief overview of the key results for the wide beam Spyder LED sample:

Sample	Luminous Efficacy (Lumens / Watt)	Luminous Flux (Lumens)	Input Power (Watts)	Stabilization Time
Spyder Wide Beam	36.41	1142.5	31.38	34 minutes



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<b>Test Results – Spyder Wide Beam</b>	
The following results were measured after stabilization. Stability is reached when the variation of 3 readings of light output and electrical power, taken 15 minutes apart, is less than 0.50% (in accordance with IES LM-79-08).	
<b>Key Photometric Results</b>	<b>Sample Reference# Spyder Wide Beam</b>
Luminous Efficacy (Lumens/Watt)	<b>36.41</b>
Total Luminous Flux (Lumens)	<b>1142.5</b>
Stabilization Time	<b>34 minutes</b>
Total Run Time – Goniophotometer	<b>72 minutes</b>
<b>Electrical Input Results:</b>	<b>Sample Reference# Spyder Wide Beam</b>
Input Power (Watts)	<b>31.38</b>
Input Voltage (Volts AC)	<b>120.0</b>
Input Current (Amps)	<b>0.575</b>
Input Frequency (Hertz)	<b>60.0</b>
Power Factor	<b>0.455</b>
<b>Additional Information</b>	<b>Sample Reference# Spyder Wide Beam</b>
Ambient Temperature	<b>25.1° C</b>

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### Test Results – Zonal Lumen Summary

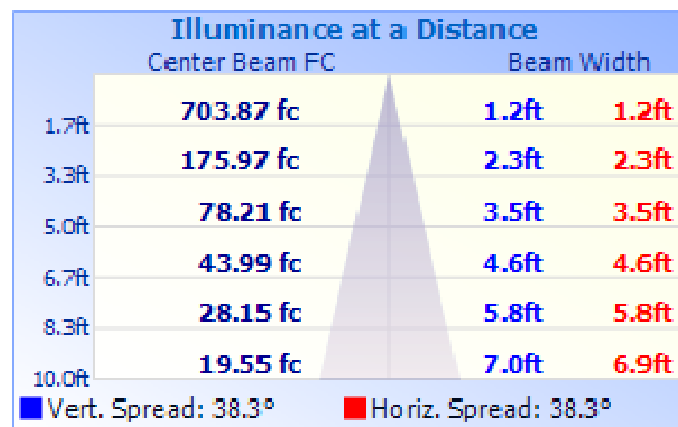
The following table depicts the zonal lumen summary for the wide beam Spyder strip luminaire:

<b>Zone</b>	<b>Lumens</b>	<b>% Total</b>
<b>0 - 10</b>	<b>174.0</b>	<b>15.2</b>
<b>10 - 20</b>	<b>359.1</b>	<b>31.4</b>
<b>20 - 30</b>	<b>281.2</b>	<b>24.6</b>
<b>30 - 40</b>	<b>159.7</b>	<b>14.0</b>
<b>40 - 50</b>	<b>81.1</b>	<b>7.1</b>
<b>50 - 60</b>	<b>42.2</b>	<b>3.7</b>
<b>60 - 70</b>	<b>27.4</b>	<b>2.4</b>
<b>70 - 80</b>	<b>13.9</b>	<b>1.2</b>
<b>80 - 90</b>	<b>4.0</b>	<b>0.4</b>
<b>Total</b>	<b>1142.5 Lumens</b>	<b>100%</b>

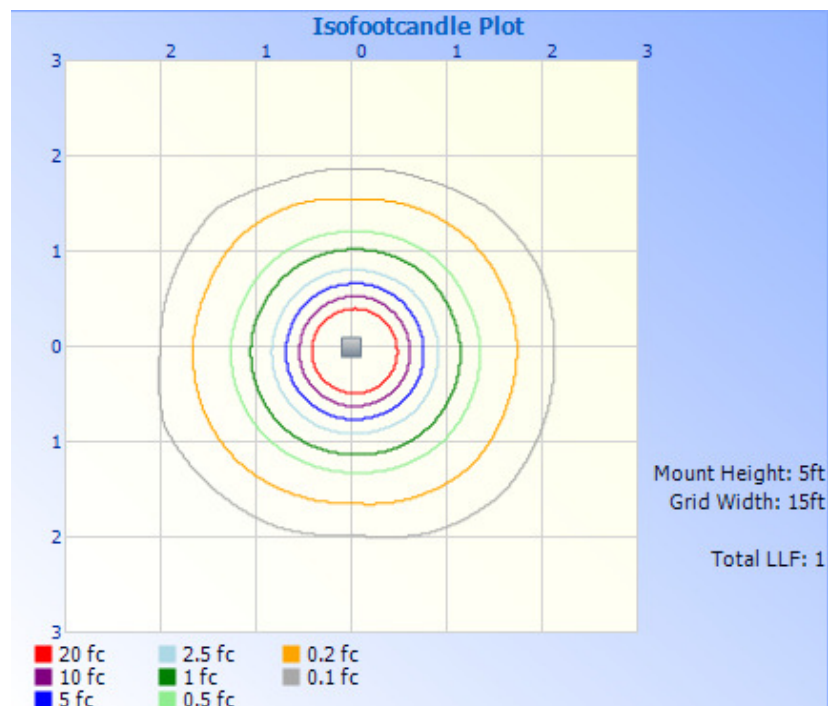
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## Test Results – Illuminance Plots

The following images depict the illuminance characteristics of the luminaire.



Illuminance Beam Spread (Footcandles)

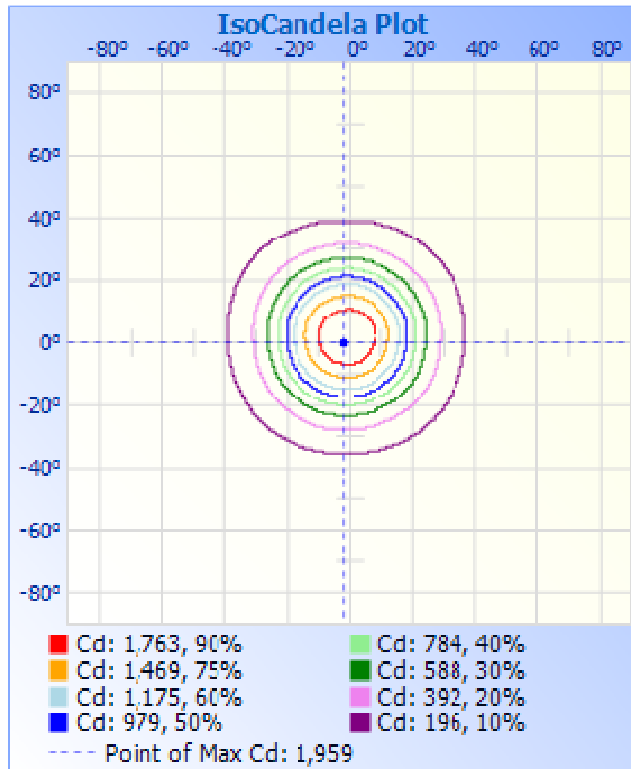


Illuminance Distribution Plot (Footcandles)

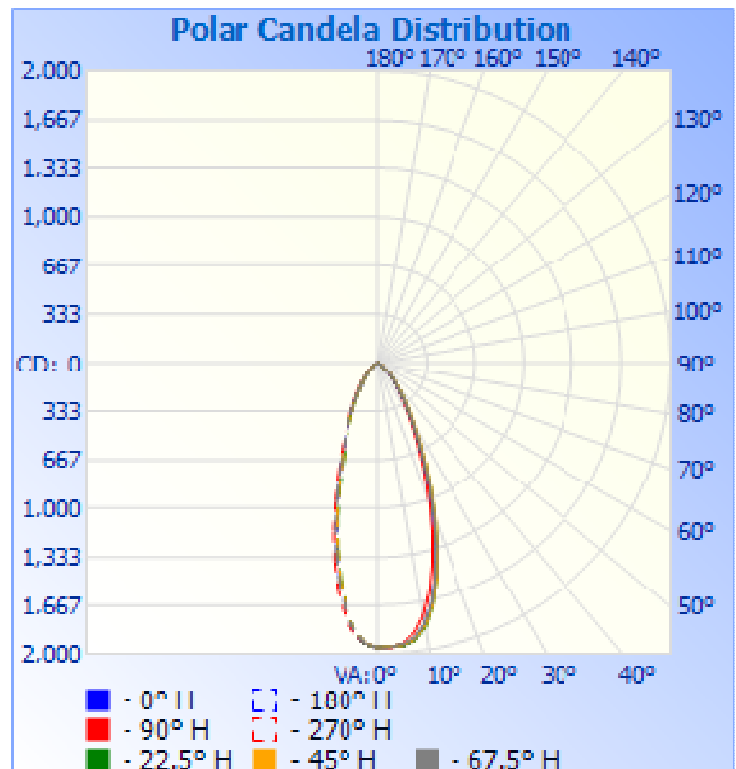
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## Test Results – Candela Plots

The following images depict the luminous intensity distribution characteristics of the wide beam Spyder strip LED luminaire.



IsoCandela Plot



Polar Candela Distribution

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## Test Results – Candela Tabulation

The following table provides the tabulated Candela measurements:

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
0.0	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20	1955.20
2.5	1947.90	1946.10	1950.30	1955.50	1958.80	1956.90	1951.70	1944.30	1935.30	1932.90	1927.70	1928.00	1932.40	1938.80	1942.60	1946.70	1947.90
5.0	1949.50	1950.10	1944.30	1937.10	1933.40	1926.20	1900.80	1866.50	1844.90	1839.30	1841.10	1842.90	1861.00	1895.80	1926.10	1942.00	1949.20
7.5	1915.40	1920.80	1915.40	1902.70	1870.10	1843.00	1794.40	1736.10	1701.70	1691.70	1696.30	1714.20	1750.70	1807.30	1855.60	1894.10	1915.30
10.0	1826.20	1846.50	1836.00	1815.80	1761.40	1710.80	1631.40	1567.60	1527.90	1504.40	1511.60	1545.90	1594.90	1676.40	1732.50	1794.00	1825.70
12.5	1686.20	1708.40	1705.30	1681.80	1609.20	1540.60	1448.30	1381.30	1328.70	1301.60	1305.40	1352.40	1401.70	1495.70	1566.90	1643.70	1685.70
15.0	1509.80	1527.60	1533.40	1508.00	1424.70	1343.30	1250.90	1173.10	1114.70	1089.00	1104.30	1149.60	1194.80	1298.00	1372.80	1454.10	1509.80
17.5	1307.80	1325.10	1334.10	1314.30	1225.70	1136.90	1045.80	972.15	920.31	890.50	912.06	952.21	992.52	1090.80	1160.40	1242.80	1307.30
20.0	1098.90	1118.00	1129.60	1104.40	1022.80	939.96	852.24	790.33	753.21	715.06	736.62	773.14	807.44	897.98	955.85	1037.00	1098.90
22.5	906.84	925.03	932.32	908.92	835.77	765.39	682.49	648.58	613.73	582.91	590.15	623.69	648.13	729.48	775.02	839.17	906.28
25.0	734.98	753.05	764.59	738.38	672.29	618.96	547.14	522.20	493.95	467.74	475.18	502.37	520.04	588.36	623.63	673.40	734.94
27.5	590.67	603.99	621.06	593.76	535.93	495.83	441.68	419.94	393.88	376.55	384.21	401.52	418.17	472.82	500.85	541.84	591.16
30.0	471.10	479.73	499.86	476.12	429.04	394.65	356.01	336.64	313.19	302.71	305.49	318.94	336.36	378.36	401.75	434.26	471.09
32.5	376.55	381.13	401.88	382.16	344.49	313.30	287.16	269.82	246.40	242.48	246.08	253.12	270.89	303.28	321.97	347.13	376.56
35.0	296.10	309.12	321.46	306.88	278.39	251.18	231.38	210.91	192.52	194.00	196.58	202.21	219.31	243.63	260.94	278.27	295.99
37.5	234.09	245.07	256.36	247.69	225.43	201.69	187.97	165.64	155.63	154.80	155.61	161.76	177.95	195.75	208.85	224.04	234.10
40.0	183.70	196.10	210.33	200.29	182.83	161.63	151.61	128.40	125.87	124.67	124.45	128.89	143.28	156.88	167.74	180.97	183.81
42.5	146.62	155.94	167.24	160.66	147.06	129.21	120.81	107.68	96.54	97.82	98.75	102.77	113.80	124.64	134.89	143.58	146.54
45.0	115.27	127.87	133.56	128.23	117.40	102.87	96.96	83.36	78.73	78.00	79.10	81.99	91.17	99.04	107.29	111.59	115.28
47.5	90.79	101.04	104.24	101.75	93.91	82.34	77.13	67.02	63.82	63.96	64.01	66.52	73.71	79.15	85.76	88.21	90.78
50.0	71.05	78.89	83.28	81.22	75.68	66.34	62.17	54.80	50.33	51.85	52.85	54.83	60.60	64.27	68.66	69.50	71.09
52.5	56.63	62.74	67.54	65.22	61.66	54.29	51.24	45.27	42.25	43.58	45.48	46.56	51.06	53.06	55.89	55.75	56.69
55.0	46.38	50.97	55.47	53.53	51.60	45.97	44.23	39.45	36.31	39.69	41.71	40.83	44.05	45.43	46.75	45.85	46.41
57.5	37.94	43.69	46.56	45.30	44.56	40.63	38.66	34.73	31.10	36.15	38.70	37.03	39.56	40.50	40.99	39.55	37.97
60.0	31.82	37.75	41.89	40.16	39.72	38.06	34.99	30.15	27.36	29.53	34.45	34.22	35.71	37.65	37.21	34.35	31.83
62.5	27.54	33.92	38.86	37.00	36.13	35.44	31.82	25.15	23.14	23.88	30.77	30.59	30.86	35.66	33.52	31.13	27.54
65.0	23.96	31.35	35.89	34.02	31.77	32.48	27.69	20.14	19.37	19.06	28.38	26.72	25.39	32.73	29.57	28.05	23.98
67.5	20.73	26.62	32.42	30.45	26.27	28.71	24.72	15.03	15.36	13.92	23.90	22.46	21.06	28.97	25.66	23.34	20.75
70.0	18.22	19.82	29.30	25.84	21.27	24.75	21.39	10.04	12.09	9.73	20.67	18.97	17.25	23.95	22.98	18.55	18.23
72.5	15.85	18.01	25.32	22.18	17.34	20.67	17.78	6.92	8.84	6.74	14.89	16.36	14.03	19.61	20.15	17.50	15.86
75.0	12.58	16.91	21.43	18.14	13.79	17.94	11.24	4.82	5.85	4.36	8.74	14.59	11.01	16.03	17.51	15.06	12.60
77.5	9.29	12.25	18.52	14.82	10.62	15.49	6.87	3.07	3.73	2.63	5.19	11.29	8.15	13.32	14.55	10.71	9.30
80.0	6.28	7.59	13.89	12.30	7.73	11.71	4.26	2.17	1.23	1.84	3.12	7.78	5.60	11.23	10.36	6.74	6.30
82.5	4.27	4.90	9.35	10.13	5.45	7.97	2.75	1.78	0.08	1.47	2.12	4.56	3.54	8.26	6.65	4.31	4.28
85.0	2.99	3.38	5.80	7.34	3.39	4.67	1.85	1.67	0.07	1.32	1.49	2.72	2.21	5.14	4.03	2.88	3.00
87.5	2.37	2.62	3.57	4.40	2.05	2.74	1.38	1.59	0.07	1.19	1.20	1.77	2.47	2.99	2.73	2.19	2.37
90.0	2.04	2.20	2.83	2.66	2.05	1.82	1.30	1.47	1.27	1.11	1.04	1.40	3.25	2.08	2.03	1.81	2.19



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### Photometric Testing Information

This sample was evaluated for photometric and electrical characteristics using a goniophotometer located in a purpose-built, temperature and humidity-controlled, draft free environment. The goniophotometer was manufactured by Mayer Engineering and is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: General Electric

Part Number: CSB-110

Bulb Number: 108-A

Voltage: 24.0 Volts

Wattage: 150.0 Watts

Calibration Current: 4.799 Amperes

Luminous Intensity: 150.3 Candelas

Calibration Date: 4-14-2009 (NIST traceable)