

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P923632

Luminaire Tested: DFN2DIP-TR3F0-090D080US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923632
REPORT IS A COMBINATION OF REPORTS P900353 AND P897195
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-090D080US940-FLLFLL
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

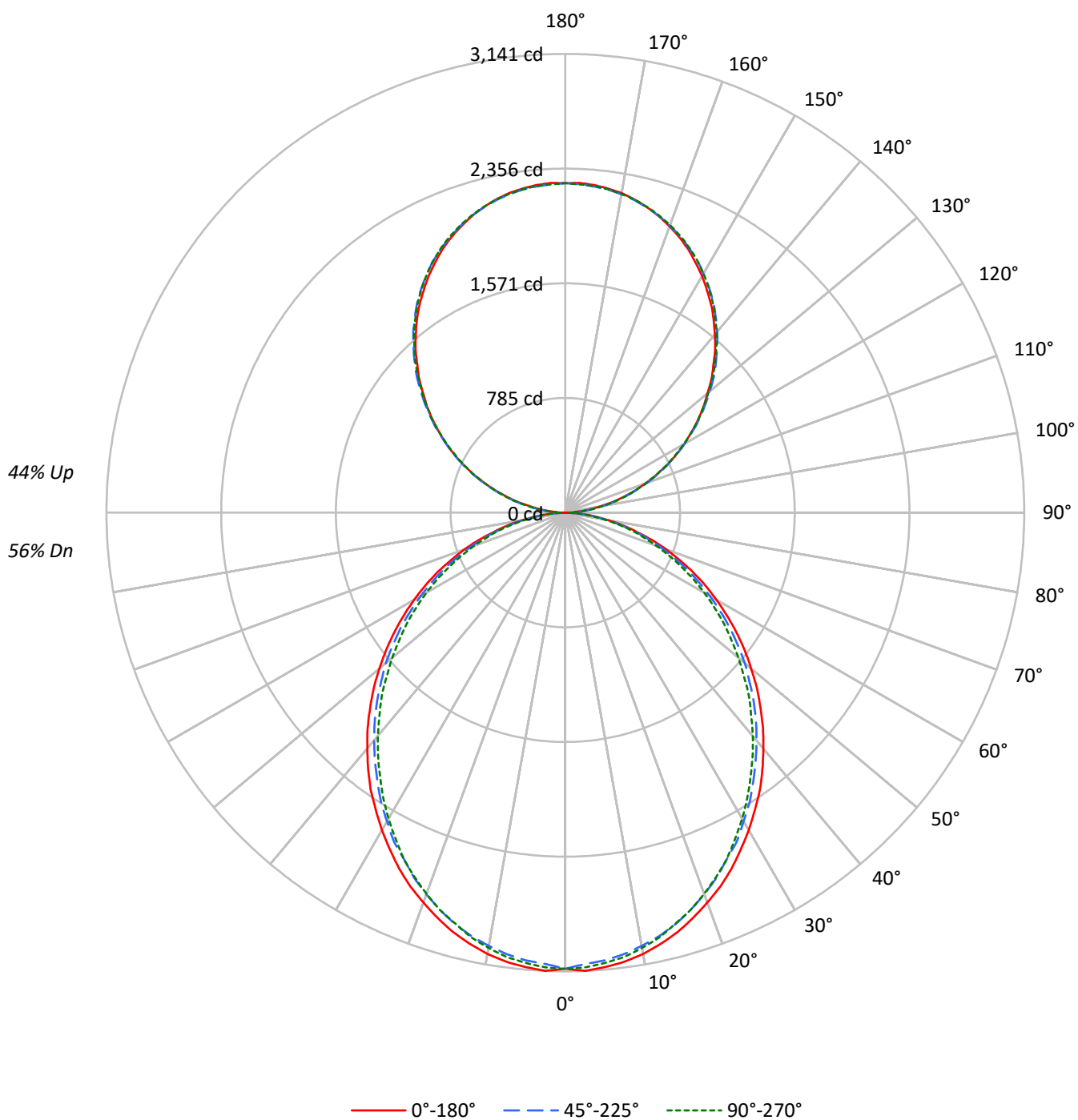
Lumens per Lamp: N/A
Luminaire Lumens: 14258.5 lumens
Efficiency: N/A
Efficacy: 91.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 156
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	101	101	101	101	87	87	87	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52
2	90	83	77	71	84	77	72	67	67	62	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	40	37
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22
8	55	42	35	29	51	40	33	28	35	29	25	30	26	22	26	22	20
9	51	39	31	26	47	36	30	25	32	26	22	28	23	20	24	20	18
10	48	36	28	23	44	33	27	22	30	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3891	3891	3891
5°	3895	3834	3860
10°	3862	3779	3805
15°	3803	3713	3721
20°	3724	3624	3635
25°	3645	3517	3536
30°	3547	3417	3411
35°	3454	3301	3278
40°	3340	3183	3152
45°	3226	3064	3022
50°	3102	2939	2873
55°	2971	2795	2734
60°	2823	2625	2576
65°	2662	2447	2389
70°	2456	2231	2188
75°	2172	1972	1998
80°	1828	1640	1642
85°	1291	1081	1060

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3226 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.1
10°-20°	827.0	5.8
20°-30°	1215.3	8.5
30°-40°	1411.5	9.9
40°-50°	1409.7	9.9
50°-60°	1229.3	8.6
60°-70°	908.7	6.4
70°-80°	514.1	3.6
80°-90°	142.1	1.0
90°-100°	139.6	1.0
100°-110°	443.6	3.1
110°-120°	759.1	5.3
120°-130°	998.3	7.0
130°-140°	1120.6	7.9
140°-150°	1098.9	7.7
150°-160°	921.8	6.5
160°-170°	611.3	4.3
170°-180°	213.7	1.5
0°-30°	2336.2	16.4
0°-40°	3747.7	26.3
0°-60°	6386.7	44.8
0°-90°	7951.6	55.8
90°-120°	1342.3	9.4
90°-150°	4560.1	32.0
90°-180°	6307.0	44.2
0°-180°	14258.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	2	24	67	63	65	14
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	12.46	13.37	13.36	14.30	15.48	12.03	12.94	12.93	13.87	15.06
	3H	14.11	14.93	15.03	15.87	17.08	13.64	14.46	14.56	15.40	16.61
	4H	14.70	15.47	15.63	16.41	17.63	14.23	15.00	15.16	15.94	17.16
	6H	15.09	15.81	16.03	16.75	17.99	14.62	15.34	15.57	16.28	17.52
	8H	15.19	15.88	16.14	16.84	18.07	14.73	15.41	15.68	16.37	17.60
	12H	15.24	15.89	16.20	16.85	18.10	14.77	15.42	15.72	16.37	17.63
4H	2H	12.92	13.70	13.86	14.64	15.86	12.58	13.36	13.52	14.30	15.52
	3H	14.78	15.43	15.73	16.40	17.63	14.39	15.04	15.34	16.01	17.25
	4H	15.49	16.08	16.45	17.05	18.31	15.09	15.68	16.05	16.65	17.91
	6H	16.00	16.51	16.97	17.50	18.76	15.60	16.11	16.57	17.09	18.35
	8H	16.15	16.62	17.12	17.60	18.88	15.74	16.22	16.71	17.20	18.47
	12H	16.22	16.65	17.21	17.65	18.92	15.80	16.23	16.79	17.23	18.51
8H	4H	15.69	16.16	16.66	17.15	18.42	15.33	15.81	16.30	16.79	18.06
	6H	16.31	16.70	17.31	17.73	19.00	15.95	16.35	16.95	17.37	18.64
	8H	16.52	16.87	17.53	17.88	19.17	16.16	16.51	17.17	17.52	18.81
	12H	16.65	16.96	17.66	17.96	19.30	16.27	16.58	17.28	17.59	18.92
12H	4H	15.67	16.11	16.67	17.10	18.38	15.33	15.76	16.32	16.75	18.03
	6H	16.34	16.69	17.35	17.70	18.99	15.99	16.34	17.00	17.35	18.64
	8H	16.58	16.88	17.59	17.89	19.22	16.22	16.53	17.23	17.54	18.87