

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: P904600

Luminaire Tested: DFN2DIP-TR4F0-050D090US830-RLFL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904600
REPORT IS A COMBINATION OF REPORTS P900462 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D090US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

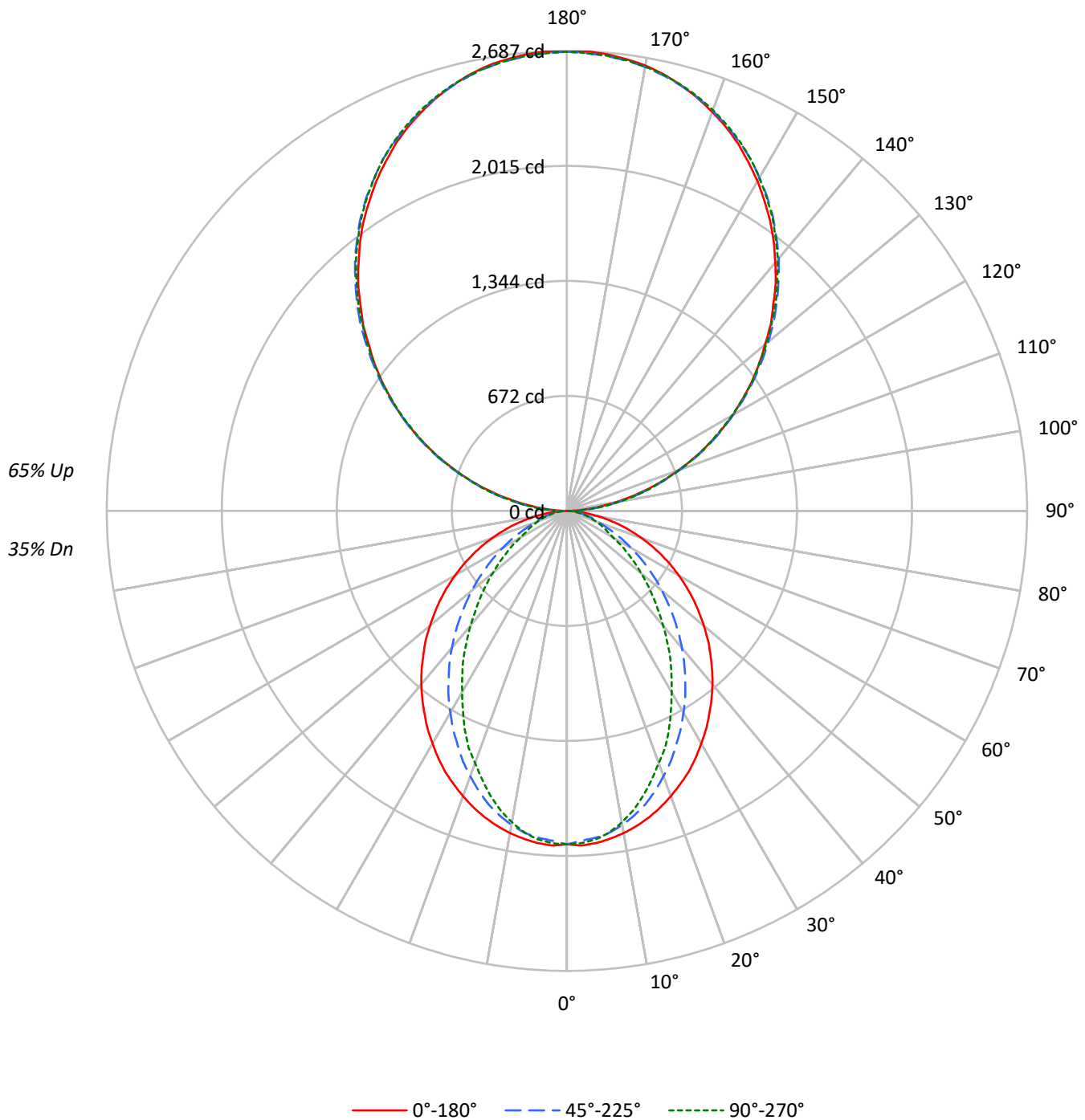
Lumens per Lamp: N/A
Luminaire Lumens: 11513.2 lumens
Efficiency: N/A
Efficacy: 105.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 109.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	42	42	42	35		
1	95	91	87	84	85	82	79	76	66	64	62	51	50	49	38	37	36	30		
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	34	32	31	26		
3	79	70	63	58	71	64	58	53	52	47	44	40	38	35	30	28	27	22		
4	72	62	55	49	65	57	50	45	46	41	38	36	33	30	27	25	23	19		
5	67	55	48	42	60	51	44	39	41	36	33	33	29	26	25	22	21	17		
6	61	50	42	37	55	45	39	34	37	32	29	30	26	23	22	20	18	15		
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	21	18	16	14		
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	19	16	15	12		
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13	11		
10	46	34	27	23	41	31	25	21	26	21	18	21	18	15	16	14	12	10		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1547	1547	1547
5°	1550	1523	1533
10°	1534	1493	1483
15°	1513	1444	1405
20°	1486	1375	1311
25°	1457	1299	1219
30°	1418	1221	1103
35°	1381	1137	1002
40°	1343	1050	885
45°	1298	954	779
50°	1252	856	676
55°	1204	752	577
60°	1148	643	475
65°	1084	533	427
70°	1007	429	386
75°	910	378	352
80°	769	317	305
85°	536	212	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2090 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.5	1.6
10°-20°	501.1	4.4
20°-30°	703.6	6.1
30°-40°	766.9	6.7
40°-50°	704.9	6.1
50°-60°	553.6	4.8
60°-70°	360.3	3.1
70°-80°	185.5	1.6
80°-90°	55.0	0.5
90°-100°	166.0	1.4
100°-110°	527.5	4.6
110°-120°	902.7	7.8
120°-130°	1187.2	10.3
130°-140°	1332.5	11.6
140°-150°	1306.7	11.3
150°-160°	1096.1	9.5
160°-170°	726.9	6.3
170°-180°	254.1	2.2
0°-30°	1387.2	12.0
0°-40°	2154.2	18.7
0°-60°	3412.7	29.6
0°-90°	4013.5	34.9
90°-120°	1596.2	13.9
90°-150°	5422.6	47.1
90°-180°	7500.0	65.1
0°-180°	11513.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1948	1948	1948	1948	1948	
5°	1948	1939	1916	1932	1927	185
15°	1853	1833	1773	1740	1722	522
25°	1682	1625	1509	1437	1410	773
35°	1449	1359	1204	1093	1054	907
45°	1185	1066	881	756	714	915
55°	901	763	573	467	434	805
65°	608	465	307	247	242	603
75°	324	201	141	129	127	343
85°	76	39	34	34	34	87
90°	2	29	79	74	77	11
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1947.8	1947.8	1947.8	1947.8	1947.8
2.5°	1956.5	1947.8	1928.3	1946.1	1942.5
5°	1947.8	1939.0	1916.0	1931.8	1926.7
7.5°	1931.8	1921.4	1896.7	1903.7	1894.8
10°	1910.7	1898.4	1863.2	1857.8	1847.3
12.5°	1884.3	1868.5	1820.8	1810.3	1790.8
15°	1852.6	1833.2	1773.3	1739.8	1722.2
17.5°	1815.5	1787.3	1713.3	1674.5	1646.2
20°	1773.3	1738.0	1649.8	1605.9	1567.0
22.5°	1727.5	1686.9	1584.6	1524.8	1498.4
25°	1681.6	1625.1	1508.8	1436.6	1410.0
27.5°	1627.0	1567.0	1438.3	1355.5	1314.9
30°	1568.9	1501.8	1360.7	1270.9	1223.2
32.5°	1512.4	1431.3	1286.9	1181.0	1136.9
35°	1449.0	1359.1	1204.0	1092.9	1054.0
37.5°	1387.2	1290.2	1126.4	1004.7	960.7
40°	1322.0	1216.4	1045.2	920.1	874.3
42.5°	1255.1	1142.3	964.2	833.7	789.8
45°	1184.6	1066.4	881.4	756.1	713.8
47.5°	1117.6	992.5	802.1	676.8	638.1
50°	1043.6	918.4	724.5	602.8	565.9
52.5°	971.2	839.0	650.4	534.1	500.7
55°	900.7	763.2	572.8	467.1	433.7
57.5°	828.5	687.5	504.2	405.5	377.2
60°	754.4	613.4	431.8	342.0	313.8
62.5°	682.2	541.2	370.1	285.6	271.5
65°	608.1	465.3	306.7	246.9	241.5
67.5°	537.6	394.8	246.9	216.8	211.5
70°	463.6	326.1	204.4	186.8	179.7
72.5°	393.1	262.6	171.0	156.9	153.4
75°	324.3	200.9	141.0	128.7	127.0
77.5°	255.6	142.7	111.1	104.0	100.4
80°	192.1	102.3	84.5	77.6	77.6
82.5°	133.9	68.8	58.2	54.6	54.6
85°	75.8	38.7	33.5	33.5	33.5
87.5°	28.3	14.0	14.0	12.3	12.3
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9

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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	7.05	7.77	8.13	8.85	10.33	3.03	3.75	4.11	4.82	6.30
	3H	8.72	9.36	9.81	10.45	11.94	4.21	4.85	5.30	5.94	7.43
	4H	9.32	9.93	10.43	11.02	12.52	4.65	5.26	5.75	6.35	7.85
	6H	9.74	10.30	10.85	11.39	12.90	4.97	5.53	6.08	6.62	8.13
	8H	9.86	10.40	10.98	11.50	13.01	5.06	5.59	6.17	6.70	8.20
	12H	9.92	10.43	11.04	11.53	13.05	5.10	5.60	6.22	6.70	8.23
4H	2H	7.06	7.67	8.17	8.76	10.25	3.61	4.22	4.72	5.31	6.80
	3H	8.88	9.38	9.99	10.50	12.01	4.95	5.46	6.06	6.57	8.08
	4H	9.56	10.03	10.68	11.13	12.67	5.49	5.96	6.61	7.06	8.60
	6H	10.07	10.47	11.20	11.60	13.12	5.91	6.31	7.03	7.43	8.96
	8H	10.24	10.62	11.37	11.74	13.28	6.03	6.41	7.16	7.53	9.07
	12H	10.33	10.67	11.48	11.80	13.35	6.09	6.43	7.24	7.56	9.11
8H	4H	9.52	9.90	10.65	11.02	12.55	5.76	6.14	6.89	7.26	8.80
	6H	10.08	10.39	11.23	11.55	13.09	6.28	6.59	7.43	7.75	9.29
	8H	10.30	10.57	11.45	11.71	13.27	6.47	6.74	7.62	7.88	9.44
	12H	10.43	10.67	11.59	11.81	13.40	6.59	6.82	7.74	7.96	9.55
12H	4H	9.47	9.81	10.61	10.94	12.48	5.76	6.10	6.91	7.23	8.78
	6H	10.06	10.33	11.21	11.47	13.03	6.33	6.60	7.48	7.74	9.30
	8H	10.28	10.51	11.43	11.65	13.24	6.54	6.77	7.69	7.91	9.50