

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: P918772

Luminaire Tested: DFN2DIP-4P4F0-080D050US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918772
REPORT IS A COMBINATION OF REPORTS P899114 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D050US935-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

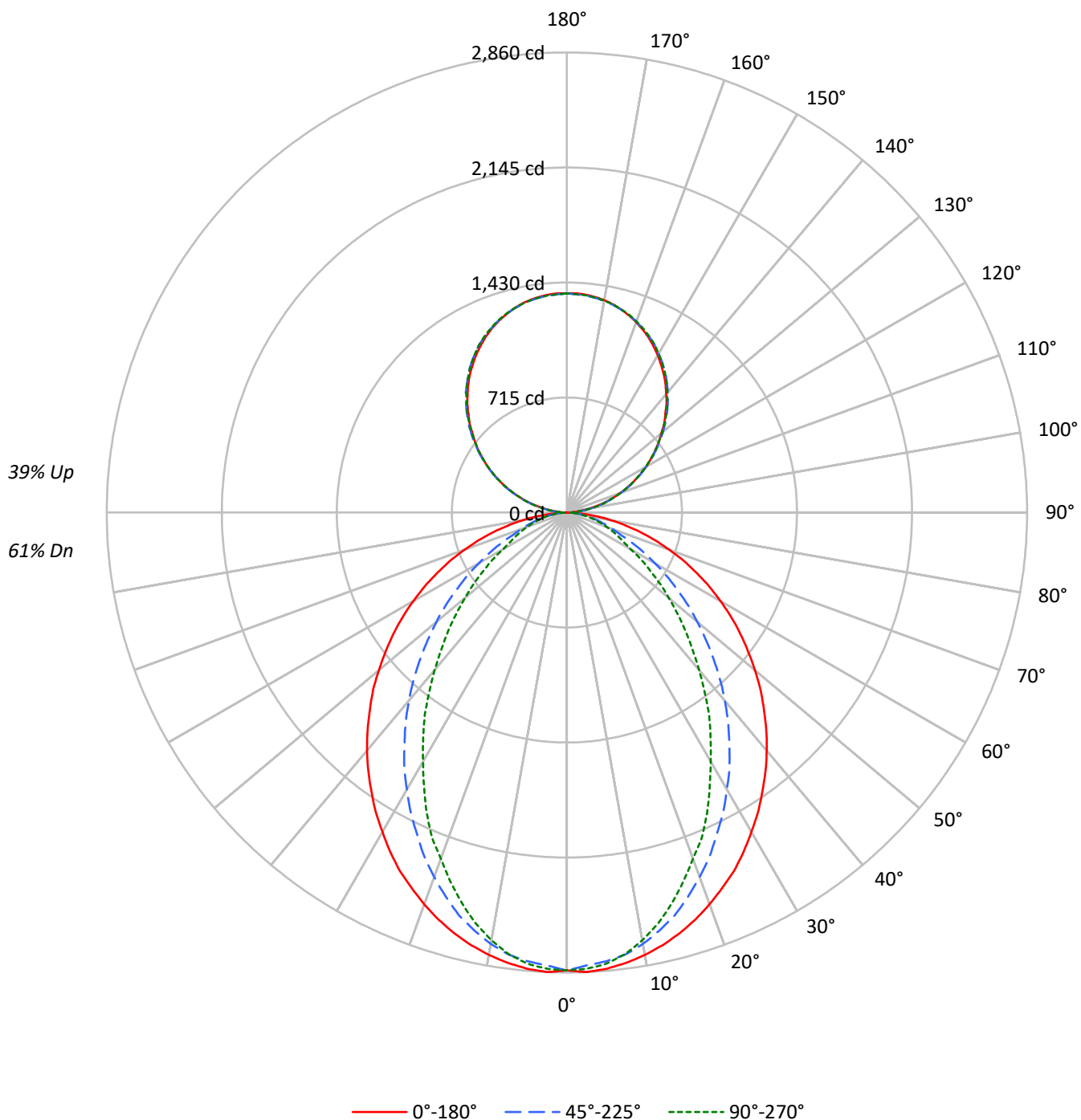
Lumens per Lamp: N/A
Luminaire Lumens: 9664.7 lumens
Efficiency: N/A
Efficacy: 76.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 126
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66
1	101	97	93	89	94	91	87	84	79	77	75	69	67	65	59	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	62	79	71	64	59	62	57	53	55	51	48	47	45	42
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	43	39	37
5	72	60	52	46	67	57	50	44	50	45	40	44	40	36	39	35	33
6	66	54	46	41	62	51	44	39	46	40	35	40	36	32	35	32	29
7	61	49	41	36	57	47	39	34	42	36	32	37	32	29	32	29	26
8	57	45	37	32	53	43	36	31	38	32	28	34	29	26	30	26	23
9	53	41	34	29	50	39	32	28	35	29	26	31	27	23	28	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1847	1847	1847
5°	1850	1818	1830
10°	1832	1783	1771
15°	1807	1725	1679
20°	1773	1644	1567
25°	1739	1553	1459
30°	1694	1461	1321
35°	1649	1361	1199
40°	1603	1257	1060
45°	1550	1142	934
50°	1496	1026	811
55°	1438	902	693
60°	1372	772	571
65°	1296	640	514
70°	1204	517	467
75°	1088	457	426
80°	921	386	372
85°	643	261	284

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1550 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	2.8
10°-20°	732.4	7.6
20°-30°	1028.3	10.6
30°-40°	1120.9	11.6
40°-50°	1030.3	10.7
50°-60°	809.1	8.4
60°-70°	526.6	5.4
70°-80°	271.1	2.8
80°-90°	73.1	0.8
90°-100°	84.2	0.9
100°-110°	267.7	2.8
110°-120°	458.1	4.7
120°-130°	602.5	6.2
130°-140°	676.3	7.0
140°-150°	663.1	6.9
150°-160°	556.3	5.8
160°-170°	368.9	3.8
170°-180°	128.9	1.3
0°-30°	2027.6	21.0
0°-40°	3148.5	32.6
0°-60°	4987.8	51.6
0°-90°	5858.7	60.6
90°-120°	810.0	8.4
90°-150°	2751.9	28.5
90°-180°	3806.0	39.4
0°-180°	9664.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	1	15	40	38	39	9
95°	60	72	73	73	72	67
105°	247	250	253	255	255	261
115°	460	466	464	463	460	455
125°	669	679	676	672	671	598
135°	865	878	880	879	876	669
145°	1050	1058	1065	1066	1061	656
155°	1201	1204	1208	1213	1210	553
165°	1306	1305	1305	1313	1307	368
175°	1359	1356	1353	1362	1354	129
180°	1362	1362	1362	1362	1362	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.8	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.1	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
90°	1.2	14.8	40.2	37.8	39.0
92.5°	25.5	34.4	35.7	36.9	36.9
95°	59.9	71.5	73.4	73.4	71.5
97.5°	99.7	110.4	114.9	114.9	114.9
100°	145.7	155.2	158.4	158.4	157.2
102.5°	194.2	201.1	205.6	206.9	205.6
105°	247.1	250.4	252.9	254.9	254.9
107.5°	299.6	304.5	304.5	305.4	299.6
110°	350.5	357.1	357.1	357.1	353.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	405.5	412.5	411.3	408.0	405.5
115°	459.7	466.3	464.3	463.0	459.7
117.5°	513.5	522.5	516.8	513.5	510.2
120°	567.7	576.7	567.7	567.7	564.0
122.5°	616.9	628.4	622.7	619.4	616.9
125°	668.7	678.9	675.6	671.9	670.7
127.5°	719.1	731.8	727.4	722.4	719.1
130°	766.4	781.1	779.0	776.6	772.1
132.5°	819.3	830.8	831.6	825.9	822.6
135°	864.9	877.5	880.0	878.8	875.5
137.5°	915.8	926.0	928.1	927.2	922.3
140°	960.4	970.8	976.5	976.5	972.0
142.5°	1006.4	1016.8	1020.0	1021.2	1016.8
145°	1050.0	1058.2	1064.7	1066.0	1061.4
147.5°	1089.0	1099.2	1104.1	1106.2	1101.6
150°	1129.2	1136.2	1140.6	1144.4	1140.6
152.5°	1164.9	1171.9	1177.6	1182.2	1177.6
155°	1200.6	1203.8	1207.5	1213.3	1209.6
157.5°	1231.4	1233.8	1235.9	1244.1	1238.4
160°	1258.9	1261.4	1262.6	1269.5	1264.6
162.5°	1284.4	1284.4	1285.6	1293.4	1287.6
165°	1306.1	1304.8	1304.8	1313.1	1307.3
167.5°	1325.8	1322.1	1322.1	1330.3	1324.6
170°	1340.6	1337.3	1336.1	1344.3	1337.3
172.5°	1350.8	1347.5	1346.3	1354.5	1347.5
175°	1359.1	1355.7	1353.3	1361.5	1354.5
177.5°	1363.6	1360.3	1357.8	1364.8	1357.8
180°	1361.5	1361.5	1361.5	1361.5	1361.5

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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	10.23	11.16	11.10	12.04	13.16	6.19	7.12	7.06	8.00	9.12
	3H	11.92	12.75	12.80	13.65	14.79	7.39	8.22	8.27	9.11	10.25
	4H	12.54	13.32	13.44	14.22	15.37	7.85	8.63	8.74	9.53	10.68
	6H	12.97	13.69	13.88	14.60	15.76	8.18	8.89	9.08	9.80	10.96
	8H	13.10	13.79	14.02	14.71	15.87	8.27	8.95	9.18	9.88	11.04
	12H	13.17	13.82	14.09	14.74	15.93	8.32	8.97	9.24	9.88	11.07
4H	2H	10.26	11.05	11.17	11.94	13.09	6.80	7.59	7.71	8.48	9.64
	3H	12.11	12.76	13.02	13.69	14.85	8.17	8.81	9.08	9.75	10.91
	4H	12.81	13.40	13.73	14.33	15.52	8.72	9.31	9.64	10.24	11.43
	6H	13.33	13.84	14.27	14.79	15.99	9.15	9.65	10.08	10.60	11.80
	8H	13.51	13.99	14.45	14.93	16.14	9.28	9.75	10.22	10.70	11.90
	12H	13.62	14.04	14.57	15.01	16.22	9.35	9.77	10.30	10.74	11.95
8H	4H	12.78	13.26	13.72	14.20	15.41	9.01	9.48	9.95	10.43	11.63
	6H	13.36	13.75	14.32	14.74	15.94	9.53	9.93	10.50	10.91	12.12
	8H	13.58	13.93	14.55	14.90	16.12	9.73	10.07	10.70	11.05	12.27
	12H	13.73	14.03	14.70	15.00	16.27	9.85	10.16	10.83	11.13	12.40
12H	4H	12.74	13.17	13.70	14.13	15.34	9.02	9.45	9.98	10.41	11.62
	6H	13.34	13.68	14.31	14.66	15.88	9.58	9.93	10.56	10.91	12.13
	8H	13.56	13.87	14.54	14.84	16.11	9.80	10.11	10.78	11.08	12.35