

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: P925263

Luminaire Tested: DFN2DIP-PN4F0-120D050US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925263
REPORT IS A COMBINATION OF REPORTS P901164 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US950-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

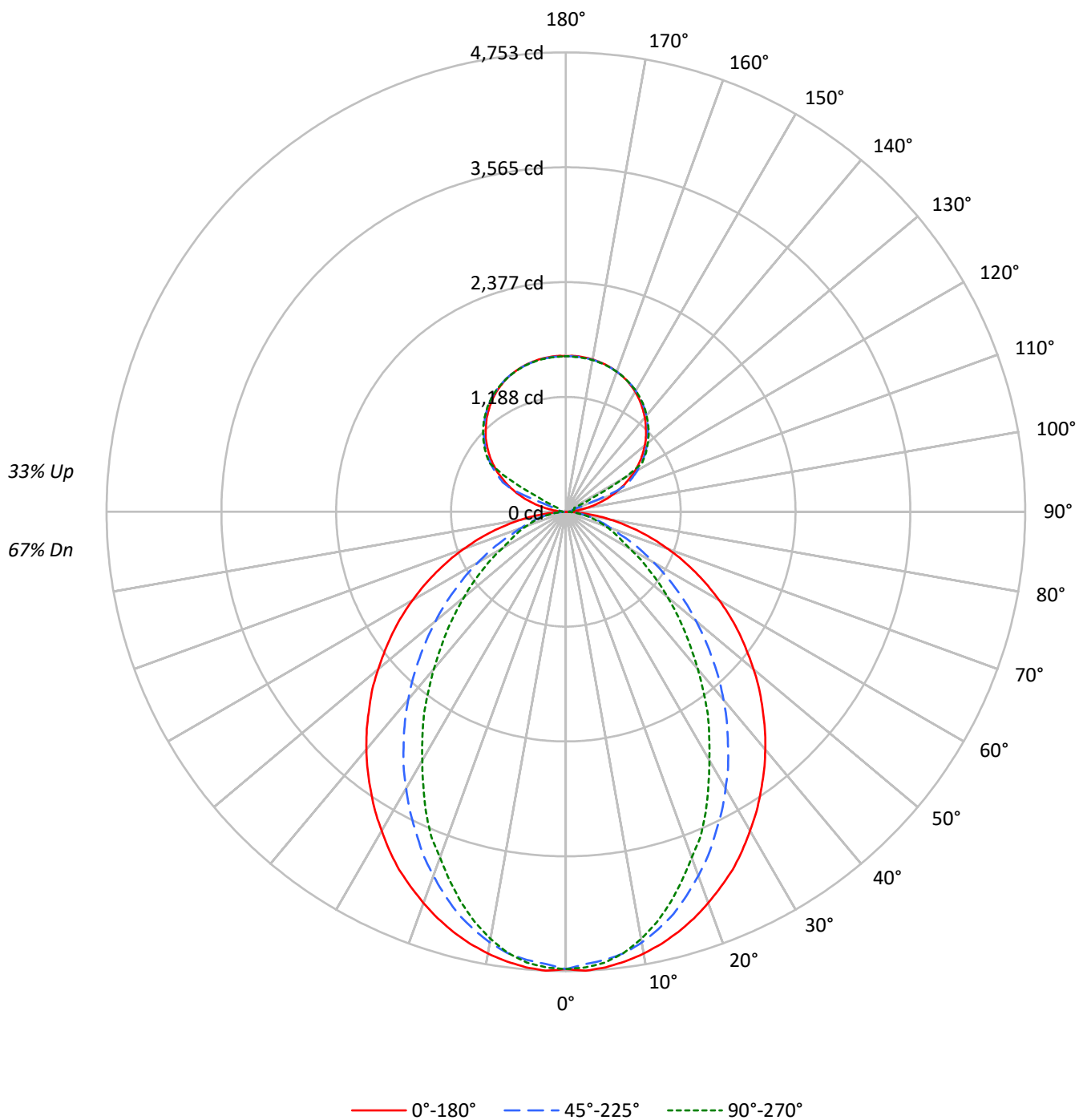
Lumens per Lamp: N/A
Luminaire Lumens: 14453.1 lumens
Efficiency: N/A
Efficacy: 88.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	69	69	69
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58	56	54
2	94	86	80	75	88	82	77	72	73	69	66	65	62	59	58	55	53	50	47	44
3	86	77	69	64	81	73	66	61	65	60	56	58	54	51	52	49	46	43	40	37
4	79	68	61	55	74	65	58	52	58	53	48	52	48	44	47	43	40	37	34	31
5	73	61	53	47	69	58	51	46	53	47	42	47	43	39	42	39	36	33	30	27
6	67	55	47	42	63	53	45	40	48	42	37	43	38	34	39	35	32	29	26	23
7	63	50	42	37	59	48	41	36	44	38	33	39	35	31	36	32	28	26	23	20
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26	24	21	18
9	54	42	35	30	51	40	33	29	37	31	27	34	29	25	30	26	23	21	18	15
10	51	39	32	27	48	37	31	26	34	28	25	31	26	23	28	24	21	20	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3454	3454	3454
5°	3459	3399	3421
10°	3425	3333	3311
15°	3378	3223	3139
20°	3316	3072	2928
25°	3252	2902	2725
30°	3166	2728	2467
35°	3082	2541	2240
40°	2996	2347	1979
45°	2897	2132	1743
50°	2794	1915	1513
55°	2687	1682	1291
60°	2563	1439	1064
65°	2420	1193	958
70°	2247	962	868
75°	2029	849	791
80°	1714	714	688
85°	1194	479	522

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2897 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.4	3.1
10°-20°	1217.3	8.4
20°-30°	1709.1	11.8
30°-40°	1863.0	12.9
40°-50°	1712.3	11.8
50°-60°	1344.7	9.3
60°-70°	875.3	6.1
70°-80°	450.6	3.1
80°-90°	117.9	0.8
90°-100°	53.1	0.4
100°-110°	197.9	1.4
110°-120°	524.8	3.6
120°-130°	870.4	6.0
130°-140°	924.6	6.4
140°-150°	859.3	5.9
150°-160°	690.9	4.8
160°-170°	445.2	3.1
170°-180°	153.2	1.1
0°-30°	3369.8	23.3
0°-40°	5232.8	36.2
0°-60°	8289.9	57.4
0°-90°	9733.6	67.3
90°-120°	775.8	5.4
90°-150°	3430.2	23.7
90°-180°	4719.0	32.7
0°-180°	14453.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4732	4732	4732	4732	4732	
5°	4732	4710	4654	4693	4680	449
15°	4500	4453	4308	4226	4184	1268
25°	4085	3948	3665	3490	3425	1879
35°	3520	3301	2925	2655	2560	2203
45°	2878	2590	2141	1837	1734	2222
55°	2188	1854	1392	1135	1054	1955
65°	1477	1130	745	600	586	1465
75°	788	488	343	312	308	833
85°	184	94	81	81	81	211
90°	1	14	23	29	31	14
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4731.5	4731.5	4731.5	4731.5	4731.5
2.5°	4752.8	4731.5	4684.2	4727.4	4718.7
5°	4731.5	4710.1	4654.2	4692.8	4680.1
7.5°	4692.8	4667.3	4607.4	4624.2	4602.9
10°	4641.5	4611.5	4526.1	4512.9	4487.5
12.5°	4577.4	4538.8	4422.9	4397.6	4350.3
15°	4500.2	4453.0	4307.6	4226.2	4183.6
17.5°	4410.2	4341.7	4161.7	4067.8	3999.2
20°	4307.6	4221.7	4007.8	3901.0	3806.5
22.5°	4196.3	4097.7	3849.2	3703.8	3639.8
25°	4085.0	3947.7	3665.2	3489.8	3425.3
27.5°	3952.3	3806.5	3493.9	3292.7	3194.1
30°	3811.0	3648.0	3305.4	3087.3	2971.5
32.5°	3673.9	3476.7	3126.0	2868.9	2761.6
35°	3519.9	3301.3	2924.7	2654.9	2560.3
37.5°	3369.9	3134.2	2736.2	2440.4	2333.7
40°	3211.4	2954.7	2539.1	2235.1	2123.8
42.5°	3048.7	2774.8	2342.4	2025.2	1918.5
45°	2877.5	2590.4	2141.1	1836.7	1734.0
47.5°	2714.8	2410.9	1948.4	1644.1	1550.1
50°	2535.0	2231.0	1759.9	1464.2	1374.7
52.5°	2359.1	2037.9	1580.0	1297.4	1216.2
55°	2187.9	1854.0	1391.5	1134.8	1053.5
57.5°	2012.5	1670.0	1224.7	984.9	916.3
60°	1832.6	1490.1	1048.9	830.9	762.3
62.5°	1657.3	1314.7	899.0	693.7	659.6
65°	1477.4	1130.3	745.1	599.7	586.5
67.5°	1306.1	959.0	599.7	526.5	513.8
70°	1126.2	792.3	496.6	453.8	436.6
72.5°	955.0	637.8	415.2	381.1	372.5
75°	787.7	487.9	342.6	312.5	308.4
77.5°	621.1	346.6	269.9	252.6	243.9
80°	466.6	248.5	205.3	188.5	188.5
82.5°	325.3	167.1	141.3	132.6	132.6
85°	184.0	94.1	81.3	81.3	81.3
87.5°	68.6	34.1	34.1	30.0	30.0
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8

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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	12.94	13.94	13.74	14.76	15.76	8.91	9.90	9.71	10.72	11.72
	3H	14.64	15.53	15.45	16.35	17.39	10.11	11.00	10.92	11.83	12.86
	4H	15.26	16.09	16.09	16.93	17.97	10.57	11.41	11.40	12.24	13.29
	6H	15.69	16.46	16.53	17.30	18.36	10.90	11.67	11.74	12.52	13.57
	8H	15.82	16.56	16.67	17.42	18.47	11.00	11.73	11.85	12.59	13.65
	12H	15.89	16.59	16.75	17.44	18.53	11.04	11.74	11.90	12.60	13.68
4H	2H	12.98	13.82	13.82	14.66	15.70	9.53	10.37	10.36	11.20	12.24
	3H	14.83	15.53	15.68	16.40	17.45	10.89	11.59	11.74	12.46	13.52
	4H	15.53	16.16	16.39	17.03	18.12	11.45	12.08	12.31	12.95	14.03
	6H	16.06	16.60	16.93	17.49	18.58	11.88	12.42	12.75	13.31	14.40
	8H	16.24	16.75	17.12	17.63	18.73	12.01	12.52	12.89	13.40	14.51
	12H	16.34	16.80	17.24	17.70	18.81	12.08	12.54	12.98	13.45	14.55
8H	4H	15.51	16.02	16.39	16.91	18.01	11.74	12.25	12.62	13.14	14.24
	6H	16.09	16.51	16.99	17.43	18.54	12.27	12.69	13.17	13.62	14.72
	8H	16.31	16.68	17.22	17.60	18.72	12.46	12.83	13.37	13.75	14.87
	12H	16.45	16.78	17.37	17.69	18.87	12.59	12.92	13.50	13.83	15.00
12H	4H	15.47	15.93	16.37	16.83	17.94	11.75	12.21	12.65	13.12	14.22
	6H	16.06	16.44	16.98	17.36	18.48	12.32	12.69	13.23	13.61	14.73
	8H	16.29	16.62	17.21	17.53	18.70	12.54	12.87	13.45	13.78	14.95