

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: P924031

Luminaire Tested: DFN2DIP-4P3F0-030D050US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P924031  
REPORT IS A COMBINATION OF REPORTS P900581 AND P897473  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-030D050US950-FLLONL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

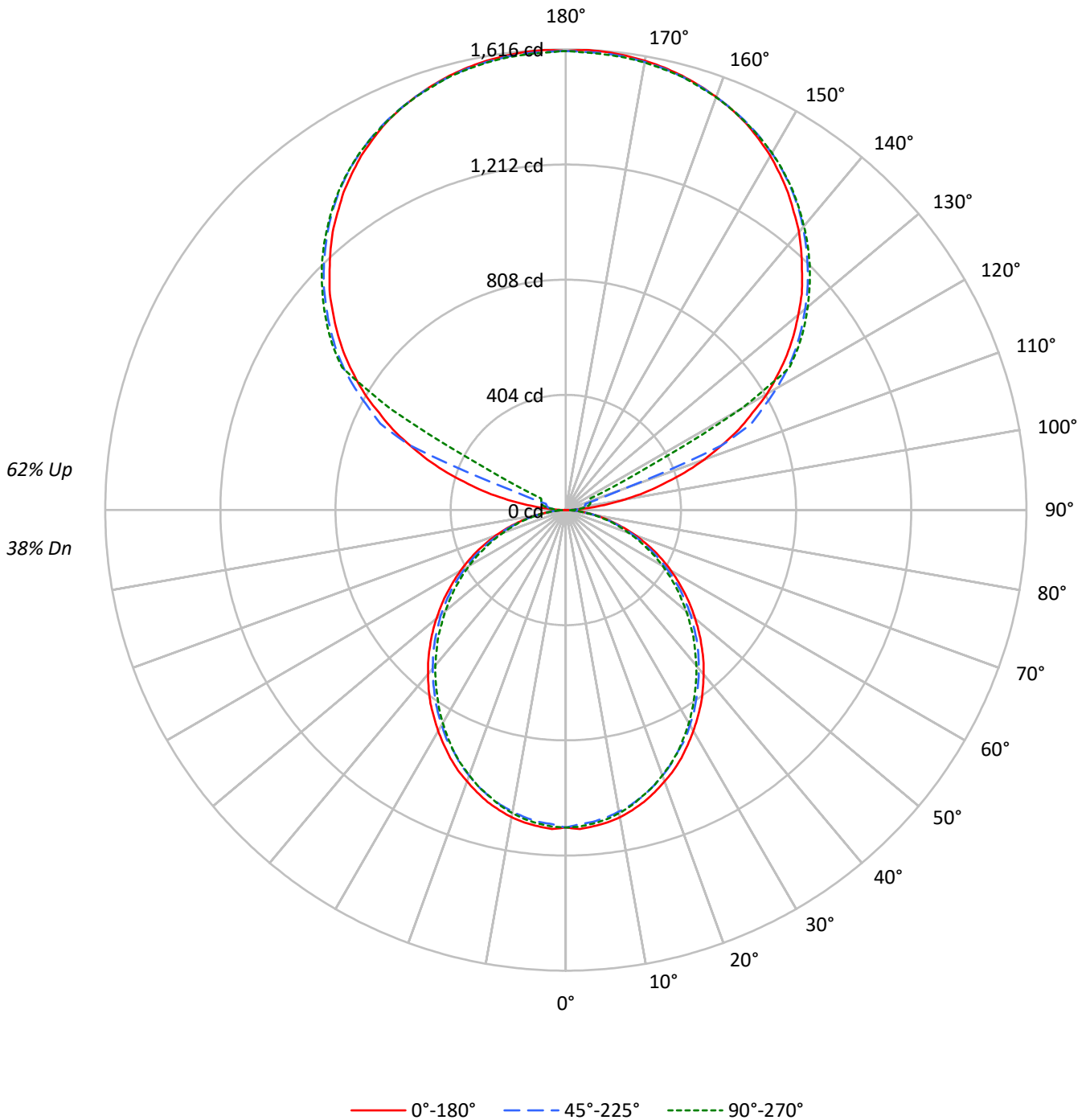
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7555.7 lumens  
Efficiency: N/A  
Efficacy: 117.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 64.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45	38	38	38	38
1	95	91	87	83	86	82	79	76	67	65	63	53	51	50	39	39	38	32	32	32	32
2	86	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32	26	26	26	26
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27	22	22	22	22
4	72	62	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19	19	19	19
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20	17	17	17	17
6	61	49	41	35	55	45	38	33	37	32	28	29	26	23	22	20	18	15	15	15	15
7	56	44	36	31	51	40	34	29	33	28	24	27	23	20	20	18	16	13	13	13	13
8	52	40	32	27	47	37	30	25	30	25	22	24	21	18	19	16	14	12	12	12	12
9	48	36	29	24	44	33	27	23	28	23	19	22	19	16	17	15	13	11	11	11	11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	13	12	10	10	10	10

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1269	1269	1269
5°	1270	1251	1259
10°	1259	1233	1242
15°	1240	1212	1215
20°	1214	1183	1187
25°	1188	1148	1155
30°	1156	1116	1115
35°	1126	1078	1072
40°	1089	1040	1031
45°	1051	1001	989
50°	1011	961	941
55°	968	914	897
60°	920	859	846
65°	867	802	786
70°	799	732	721
75°	706	648	660
80°	593	540	546
85°	418	358	357

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1100 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	104.8	1.4
10°-20°	294.9	3.9
20°-30°	433.4	5.7
30°-40°	503.4	6.7
40°-50°	502.7	6.7
50°-60°	438.4	5.8
60°-70°	324.1	4.3
70°-80°	183.3	2.4
80°-90°	51.2	0.7
90°-100°	53.1	0.7
100°-110°	197.9	2.6
110°-120°	524.8	6.9
120°-130°	870.4	11.5
130°-140°	924.6	12.2
140°-150°	859.3	11.4
150°-160°	690.9	9.1
160°-170°	445.2	5.9
170°-180°	153.2	2.0
0°-30°	833.1	11.0
0°-40°	1336.5	17.7
0°-60°	2277.6	30.1
0°-90°	2836.2	37.5
90°-120°	775.8	10.3
90°-150°	3430.2	45.4
90°-180°	4719.0	62.5
0°-180°	7555.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1114	1114	1114	1114	1114	
5°	1114	1109	1098	1106	1104	106
15°	1060	1054	1040	1044	1039	299
25°	959	951	933	935	933	441
35°	828	817	800	793	788	517
45°	674	666	650	638	634	520
55°	510	503	490	478	472	456
65°	344	337	327	317	312	340
75°	180	178	172	166	168	192
85°	44	43	42	38	38	49
90°	1	14	23	29	31	7
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°	1113.6	1113.6	1113.6	1113.6	1113.6
2.5°	1120.1	1114.7	1102.9	1113.6	1111.6
5°	1113.6	1109.4	1097.6	1106.2	1104.1
7.5°	1106.2	1099.8	1087.9	1096.6	1094.4
10°	1094.4	1086.9	1074.1	1082.6	1079.5
12.5°	1078.3	1071.9	1059.1	1064.4	1062.3
15°	1060.1	1053.8	1039.8	1044.1	1038.7
17.5°	1037.6	1031.3	1017.3	1022.6	1017.3
20°	1013.0	1006.6	991.6	994.7	990.5
22.5°	988.4	978.8	964.8	964.8	962.6
25°	959.4	950.9	932.7	934.8	932.7
27.5°	927.3	919.8	905.9	902.8	897.4
30°	895.2	886.6	870.6	867.4	863.1
32.5°	861.0	854.6	837.4	830.9	826.6
35°	827.8	817.1	799.9	793.4	788.1
37.5°	790.3	780.7	763.5	755.9	750.6
40°	751.8	743.2	726.0	716.5	712.2
42.5°	714.3	705.7	688.6	677.8	671.4
45°	673.6	666.1	650.0	638.2	633.9
47.5°	633.9	626.5	609.3	597.5	591.1
50°	592.1	586.8	571.8	556.8	551.5
52.5°	551.5	544.0	530.1	518.3	510.8
55°	509.8	503.3	490.5	477.7	472.3
57.5°	467.9	462.6	448.7	435.8	431.5
60°	426.2	422.0	407.0	395.1	392.0
62.5°	385.5	378.0	367.3	356.6	352.3
65°	343.8	337.3	326.6	317.0	311.7
67.5°	301.0	295.5	285.9	278.5	274.2
70°	261.3	257.0	247.4	239.8	235.6
72.5°	220.7	216.3	210.9	203.5	200.3
75°	179.8	177.8	172.4	166.0	168.2
77.5°	143.5	139.2	137.0	133.8	130.7
80°	107.1	106.0	103.8	100.6	98.5
82.5°	72.8	72.8	71.8	67.4	67.4
85°	43.9	42.8	41.8	38.5	37.5
87.5°	19.3	17.2	15.0	11.8	10.7
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	6.79	7.55	7.85	8.61	10.05	6.35	7.11	7.40	8.17	9.61
	3H	8.44	9.12	9.51	10.19	11.65	7.95	8.63	9.02	9.70	11.16
	4H	9.02	9.66	10.10	10.74	12.20	8.53	9.17	9.60	10.24	11.71
	6H	9.41	10.00	10.50	11.08	12.55	8.91	9.50	10.00	10.58	12.06
	8H	9.51	10.08	10.60	11.17	12.64	9.01	9.57	10.10	10.66	12.13
	12H	9.55	10.09	10.65	11.17	12.67	9.04	9.58	10.14	10.67	12.16
4H	2H	7.24	7.88	8.32	8.95	10.42	6.88	7.53	7.97	8.60	10.06
	3H	9.09	9.63	10.18	10.72	12.20	8.68	9.22	9.77	10.32	11.79
	4H	9.79	10.29	10.89	11.38	12.87	9.37	9.86	10.47	10.95	12.45
	6H	10.30	10.72	11.40	11.83	13.32	9.87	10.29	10.97	11.40	12.89
	8H	10.44	10.84	11.55	11.94	13.45	10.01	10.40	11.11	11.51	13.01
	12H	10.51	10.87	11.63	11.98	13.50	10.06	10.42	11.18	11.54	13.05
8H	4H	9.98	10.37	11.08	11.48	12.98	9.60	10.00	10.71	11.10	12.61
	6H	10.60	10.93	11.73	12.07	13.57	10.21	10.54	11.34	11.69	13.19
	8H	10.81	11.10	11.95	12.23	13.75	10.42	10.71	11.55	11.83	13.36
	12H	10.94	11.19	12.08	12.31	13.87	10.53	10.78	11.66	11.90	13.46
12H	4H	9.96	10.32	11.08	11.43	12.94	9.59	9.95	10.71	11.06	12.58
	6H	10.63	10.91	11.76	12.04	13.56	10.25	10.54	11.39	11.67	13.19
	8H	10.86	11.11	12.00	12.23	13.79	10.48	10.73	11.61	11.85	13.41