

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: P909725

Luminaire Tested: DFN2DIP-TR2F0-020D040US840-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P909725  
REPORT IS A COMBINATION OF REPORTS P901761 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-020D040US840-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

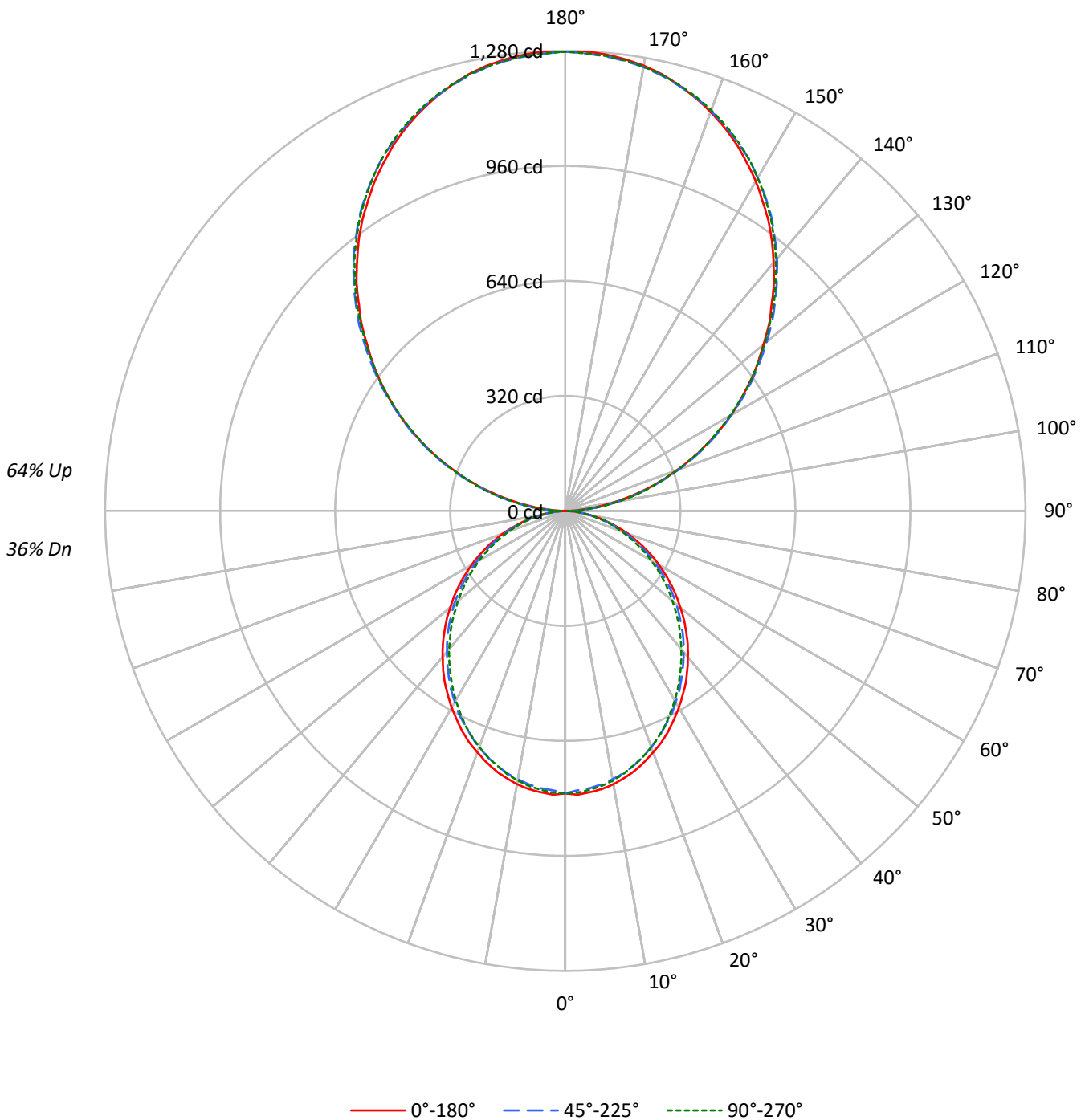
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5574.5 lumens  
Efficiency: N/A  
Efficacy: 125.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 44.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
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	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36			36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30			30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25			25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21			21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18			18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16			16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14			14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12			12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11			11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10			10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9			9

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

	0°	45°	90°
0°	1753	1753	1753
5°	1753	1725	1737
10°	1736	1697	1710
15°	1708	1666	1671
20°	1671	1623	1630
25°	1634	1573	1584
30°	1588	1526	1525
35°	1545	1471	1464
40°	1492	1415	1405
45°	1438	1359	1345
50°	1380	1300	1276
55°	1319	1232	1211
60°	1250	1152	1137
65°	1174	1069	1050
70°	1077	967	956
75°	944	844	865
80°	783	689	699
85°	533	434	435

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1669 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	74.0	1.3
10°-20°	208.1	3.7
20°-30°	305.8	5.5
30°-40°	355.2	6.4
40°-50°	354.8	6.4
50°-60°	309.4	5.5
60°-70°	228.7	4.1
70°-80°	129.4	2.3
80°-90°	37.8	0.7
90°-100°	79.1	1.4
100°-110°	251.2	4.5
110°-120°	429.8	7.7
120°-130°	565.3	10.1
130°-140°	634.5	11.4
140°-150°	622.2	11.2
150°-160°	522.0	9.4
160°-170°	346.2	6.2
170°-180°	121.0	2.2
0°-30°	587.9	10.5
0°-40°	943.2	16.9
0°-60°	1607.3	28.8
0°-90°	2003.2	35.9
90°-120°	760.1	13.6
90°-150°	2582.2	46.3
90°-180°	3571.0	64.1
0°-180°	5574.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	786	786	786	786	786	
5°	786	783	775	781	779	75
15°	748	744	734	737	733	211
25°	677	671	658	660	658	312
35°	584	577	564	560	556	365
45°	475	470	459	450	447	367
55°	360	355	346	337	333	322
65°	243	238	231	224	220	240
75°	127	126	122	117	119	135
85°	31	30	30	27	26	35
90°	1	14	38	35	37	5
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	785.9	785.9	785.9	785.9	785.9
2.5°	790.4	786.7	778.3	785.9	784.5
5°	785.9	782.9	774.6	780.6	779.1
7.5°	780.6	776.1	767.8	773.9	772.3
10°	772.3	767.1	758.0	764.0	761.7
12.5°	760.9	756.5	747.4	751.1	749.6
15°	748.1	743.7	733.8	736.8	733.1
17.5°	732.3	727.8	717.9	721.6	717.9
20°	714.9	710.3	699.7	702.1	699.0
22.5°	697.5	690.7	680.9	680.9	679.3
25°	677.1	671.1	658.2	659.6	658.2
27.5°	654.4	649.1	639.3	637.1	633.3
30°	631.8	625.7	614.4	612.2	609.0
32.5°	607.5	603.1	591.0	586.4	583.4
35°	584.2	576.6	564.5	560.0	556.1
37.5°	557.7	550.9	538.8	533.5	529.7
40°	530.5	524.4	512.3	505.6	502.5
42.5°	504.0	498.0	485.9	478.4	473.8
45°	475.3	470.1	458.7	450.4	447.4
47.5°	447.4	442.1	430.0	421.6	417.2
50°	417.9	414.1	403.5	392.9	389.2
52.5°	389.2	383.8	374.1	365.8	360.5
55°	359.7	355.2	346.1	337.1	333.3
57.5°	330.2	326.5	316.6	307.6	304.5
60°	300.7	297.8	287.2	278.8	276.6
62.5°	272.1	266.7	259.2	251.7	248.6
65°	242.6	238.0	230.6	223.7	219.9
67.5°	212.4	208.5	201.8	196.5	193.5
70°	184.4	181.4	174.5	169.3	166.3
72.5°	155.7	152.7	148.9	143.6	141.4
75°	126.9	125.5	121.6	117.1	118.7
77.5°	101.3	98.3	96.6	94.4	92.2
80°	75.6	74.8	73.3	71.0	69.5
82.5°	51.4	51.4	50.7	47.7	47.7
85°	30.9	30.2	29.5	27.2	26.5
87.5°	13.6	12.1	10.6	8.4	7.6
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5



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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	7.63	8.38	8.70	9.45	10.91	7.21	7.95	8.28	9.03	10.48
	3H	9.26	9.93	10.34	11.01	12.48	8.80	9.47	9.88	10.55	12.02
	4H	9.82	10.46	10.91	11.54	13.02	9.36	10.00	10.45	11.08	12.56
	6H	10.20	10.79	11.30	11.87	13.36	9.74	10.32	10.84	11.41	12.90
	8H	10.29	10.85	11.39	11.95	13.44	9.83	10.39	10.94	11.49	12.98
	12H	10.33	10.86	11.44	11.95	13.46	9.87	10.39	10.97	11.49	13.00
4H	2H	8.07	8.70	9.16	9.79	11.27	7.73	8.37	8.83	9.45	10.93
	3H	9.90	10.43	11.00	11.53	13.03	9.51	10.04	10.62	11.15	12.65
	4H	10.59	11.07	11.69	12.17	13.69	10.19	10.68	11.30	11.78	13.29
	6H	11.07	11.49	12.19	12.61	14.12	10.68	11.09	11.79	12.22	13.73
	8H	11.21	11.60	12.32	12.71	14.24	10.81	11.20	11.93	12.31	13.84
	12H	11.27	11.62	12.40	12.74	14.28	10.86	11.21	11.99	12.34	13.87
8H	4H	10.76	11.15	11.88	12.27	13.79	10.41	10.80	11.53	11.92	13.44
	6H	11.36	11.69	12.50	12.84	14.36	11.01	11.33	12.15	12.49	14.01
	8H	11.57	11.85	12.71	12.98	14.53	11.21	11.49	12.35	12.63	14.17
	12H	11.68	11.93	12.82	13.06	14.64	11.31	11.56	12.46	12.69	14.27
12H	4H	10.74	11.10	11.87	12.22	13.75	10.40	10.75	11.53	11.88	13.41
	6H	11.39	11.67	12.53	12.81	14.35	11.04	11.33	12.19	12.46	14.00
	8H	11.61	11.85	12.75	12.99	14.56	11.26	11.51	12.41	12.64	14.22