

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: P924825

Luminaire Tested: DFN2DIP-PN3F0-040D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924825
REPORT IS A COMBINATION OF REPORTS P901117 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-040D090US950-FLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

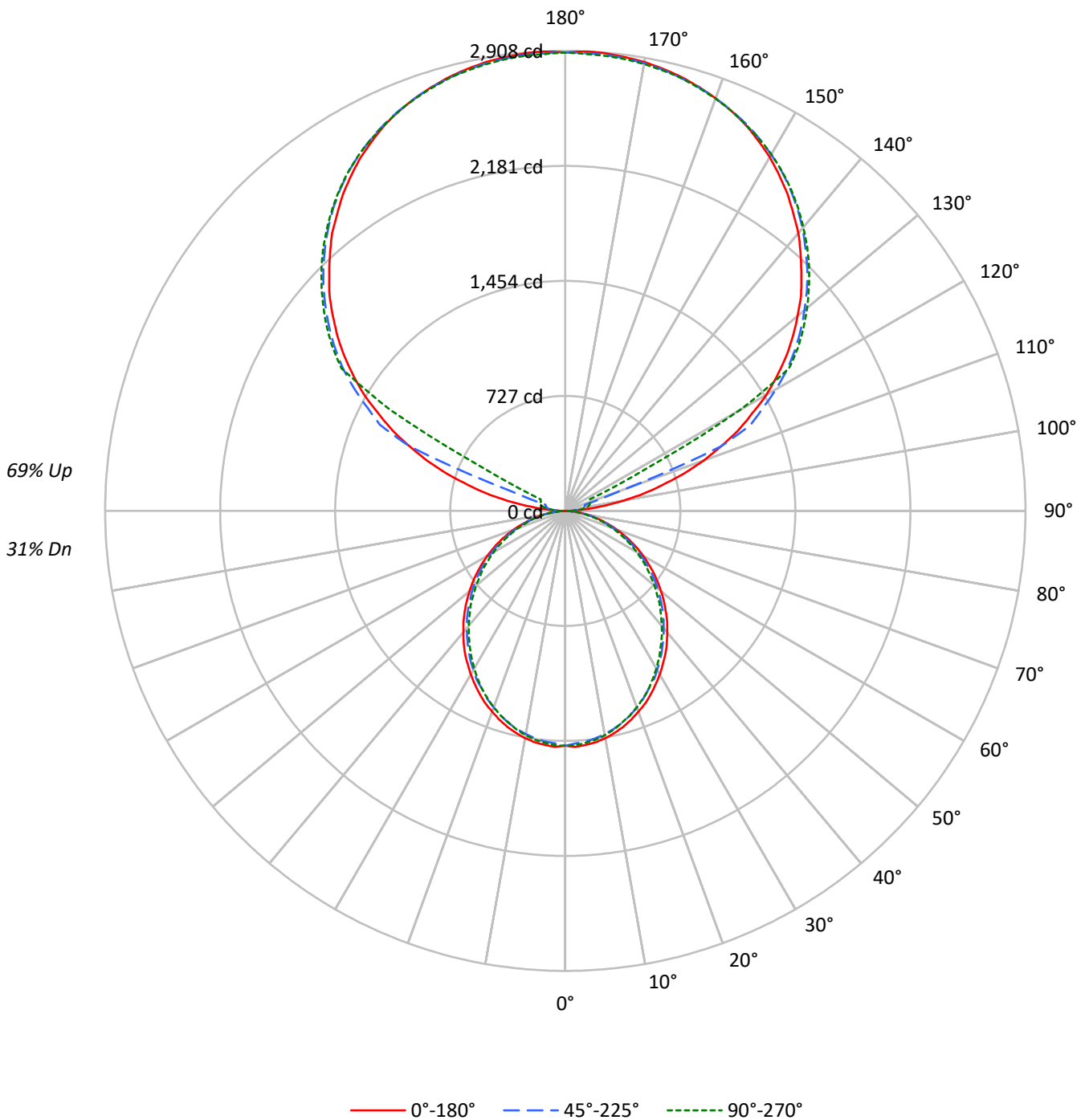
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12277.9 lumens
Efficiency: N/A
Efficacy: 115.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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				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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38	31				31
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32	26				26
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27	22				22
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23	18				18
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20	16				16
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17	14				14
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15	12				12
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14	11				11
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12	10				10
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11	9				9
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1736	1736	1736
5°	1737	1710	1722
10°	1722	1686	1698
15°	1696	1657	1661
20°	1661	1617	1623
25°	1626	1570	1579
30°	1582	1526	1524
35°	1540	1474	1465
40°	1489	1421	1409
45°	1439	1369	1352
50°	1383	1314	1285
55°	1324	1250	1224
60°	1258	1174	1154
65°	1186	1095	1072
70°	1094	999	983
75°	967	884	899
80°	813	737	742
85°	574	487	484

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1954 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.1
10°-20°	393.2	3.2
20°-30°	577.9	4.7
30°-40°	671.2	5.5
40°-50°	670.3	5.5
50°-60°	584.5	4.8
60°-70°	432.1	3.5
70°-80°	244.5	2.0
80°-90°	69.6	0.6
90°-100°	95.6	0.8
100°-110°	356.2	2.9
110°-120°	944.7	7.7
120°-130°	1566.8	12.8
130°-140°	1664.3	13.6
140°-150°	1546.8	12.6
150°-160°	1243.6	10.1
160°-170°	801.3	6.5
170°-180°	275.8	2.2
0°-30°	1110.8	9.0
0°-40°	1782.0	14.5
0°-60°	3036.8	24.7
0°-90°	3782.9	30.8
90°-120°	1396.4	11.4
90°-150°	6174.3	50.3
90°-180°	8495.0	69.2
0°-180°	12277.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	2	25	42	53	56	11
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7



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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	7.76	8.15	8.86	10.38	6.61	7.32	7.71	8.42	9.94
	3H	8.69	9.33	9.80	10.44	11.97	8.21	8.84	9.32	9.95	11.49
	4H	9.26	9.87	10.39	10.98	12.52	8.78	9.38	9.90	10.50	12.04
	6H	9.65	10.21	10.79	11.32	12.88	9.16	9.72	10.30	10.83	12.39
	8H	9.75	10.28	10.89	11.41	12.96	9.26	9.79	10.40	10.92	12.47
	12H	9.79	10.29	10.93	11.42	12.99	9.29	9.80	10.43	10.92	12.49
4H	2H	7.48	8.09	8.62	9.20	10.74	7.13	7.74	8.27	8.85	10.39
	3H	9.33	9.83	10.47	10.97	12.53	8.93	9.43	10.07	10.57	12.13
	4H	10.03	10.50	11.17	11.62	13.20	9.62	10.08	10.76	11.21	12.78
	6H	10.53	10.93	11.68	12.08	13.65	10.11	10.51	11.26	11.66	13.22
	8H	10.68	11.05	11.82	12.19	13.77	10.25	10.62	11.40	11.76	13.35
	12H	10.74	11.08	11.90	12.23	13.82	10.30	10.64	11.47	11.79	13.38
8H	4H	10.21	10.58	11.36	11.73	13.31	9.84	10.21	10.99	11.36	12.94
	6H	10.83	11.14	12.00	12.32	13.90	10.45	10.76	11.62	11.95	13.52
	8H	11.05	11.31	12.22	12.48	14.08	10.66	10.93	11.84	12.09	13.69
	12H	11.17	11.40	12.34	12.56	14.19	10.77	11.00	11.94	12.16	13.79
12H	4H	10.19	10.53	11.35	11.68	13.27	9.83	10.17	10.99	11.32	12.91
	6H	10.86	11.12	12.03	12.29	13.89	10.49	10.76	11.67	11.92	13.52
	8H	11.09	11.32	12.26	12.48	14.12	10.72	10.95	11.89	12.11	13.74