

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: P924819

Luminaire Tested: DFN2DIP-PN3F0-040D070US950-RLLONL

Issue Date: 11/21/2024

**Test Information**

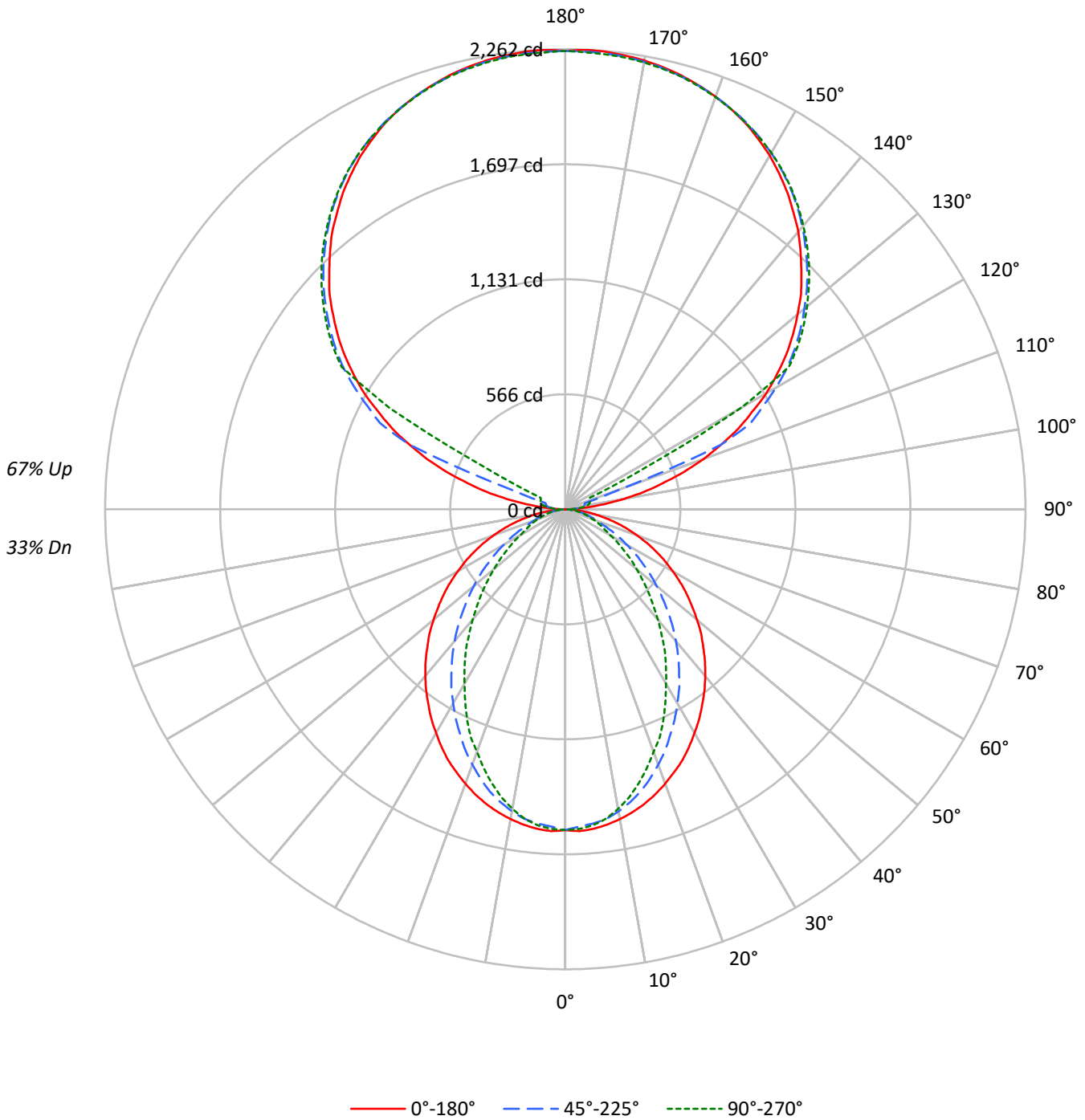
Test Method: LM-79-2019  
Report Number: P924819  
REPORT IS A COMBINATION OF REPORTS P901090 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-040D070US950-RLONL  
Description: 3 foot, 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: 9854.8 lumens  
Efficiency: N/A  
Efficacy: 110.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 89  
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	93	93	93	93	74	74	74	56	56	56	40	40	40	33				33
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35	28				28
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30	24				24
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26	21				21
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22	18				18
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20	16				16
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17	14				14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16	13				13
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14	12				12
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13	10				10
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12	10				10

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

	0°	45°	90°
0°	1844	1844	1844
5°	1846	1813	1825
10°	1826	1776	1765
15°	1800	1716	1673
20°	1766	1634	1559
25°	1730	1542	1450
30°	1683	1448	1311
35°	1638	1347	1190
40°	1591	1243	1051
45°	1536	1127	924
50°	1480	1011	801
55°	1421	886	683
60°	1353	756	561
65°	1274	624	504
70°	1179	501	455
75°	1059	439	412
80°	885	364	355
85°	601	237	262

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1536 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	147.8	1.5
10°-20°	405.8	4.1
20°-30°	569.7	5.8
30°-40°	621.0	6.3
40°-50°	570.8	5.8
50°-60°	448.2	4.5
60°-70°	291.8	3.0
70°-80°	150.2	1.5
80°-90°	42.3	0.4
90°-100°	74.3	0.8
100°-110°	277.0	2.8
110°-120°	734.8	7.5
120°-130°	1218.6	12.4
130°-140°	1294.5	13.1
140°-150°	1203.1	12.2
150°-160°	967.2	9.8
160°-170°	623.3	6.3
170°-180°	214.5	2.2
0°-30°	1123.3	11.4
0°-40°	1744.3	17.7
0°-60°	2763.3	28.0
0°-90°	3247.6	33.0
90°-120°	1086.1	11.0
90°-150°	4802.2	48.7
90°-180°	6607.0	67.0
0°-180°	9854.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1570	1551	1564	1560	150
15°	1500	1484	1436	1409	1395	423
25°	1362	1316	1222	1163	1142	626
35°	1173	1100	975	885	853	734
45°	959	864	714	612	578	741
55°	729	618	464	378	351	652
65°	492	377	248	200	196	488
75°	262	163	114	104	103	278
85°	61	31	27	27	27	70
90°	2	20	32	41	44	9
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1577.2	1577.2	1577.2	1577.2	1577.2
2.5°	1584.3	1577.2	1561.4	1575.8	1572.9
5°	1577.2	1570.0	1551.4	1564.3	1560.1
7.5°	1564.3	1555.8	1535.8	1541.4	1534.3
10°	1547.2	1537.2	1508.7	1504.3	1495.9
12.5°	1525.8	1512.9	1474.3	1465.8	1450.1
15°	1500.1	1484.3	1435.9	1408.8	1394.6
17.5°	1470.1	1447.2	1387.2	1355.9	1333.0
20°	1435.9	1407.2	1335.9	1300.3	1268.8
22.5°	1398.8	1365.9	1283.0	1234.6	1213.3
25°	1361.6	1315.9	1221.7	1163.3	1141.7
27.5°	1317.5	1268.8	1164.6	1097.6	1064.7
30°	1270.3	1216.0	1101.8	1029.1	990.5
32.5°	1224.6	1158.9	1042.0	956.3	920.5
35°	1173.3	1100.4	974.9	884.9	853.4
37.5°	1123.3	1044.7	912.0	813.5	777.9
40°	1070.5	984.9	846.4	745.1	708.0
42.5°	1016.2	924.9	780.8	675.1	639.5
45°	959.2	863.5	713.7	612.3	578.0
47.5°	905.0	803.6	649.5	548.1	516.7
50°	845.0	743.6	586.6	488.1	458.2
52.5°	786.4	679.3	526.7	432.4	405.4
55°	729.3	618.0	463.8	378.3	351.2
57.5°	670.9	556.7	408.2	328.3	305.5
60°	610.8	496.7	349.6	276.9	254.1
62.5°	552.5	438.3	299.7	231.2	219.9
65°	492.5	376.7	248.3	199.9	195.5
67.5°	435.4	319.7	199.9	175.5	171.2
70°	375.4	264.1	165.5	151.3	145.5
72.5°	318.3	212.6	138.4	127.1	124.2
75°	262.5	162.7	114.2	104.2	102.8
77.5°	207.0	115.5	90.0	84.2	81.3
80°	155.5	82.8	68.4	62.9	62.9
82.5°	108.5	55.7	47.1	44.2	44.2
85°	61.3	31.4	27.1	27.1	27.1
87.5°	22.9	11.4	11.4	10.0	10.0
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7



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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	7.39	8.10	8.49	9.19	10.69	3.36	4.07	4.45	5.16	6.65
	3H	9.05	9.69	10.16	10.79	12.30	4.53	5.16	5.64	6.26	7.78
	4H	9.65	10.25	10.77	11.35	12.87	4.97	5.57	6.09	6.67	8.19
	6H	10.06	10.62	11.19	11.72	13.25	5.28	5.83	6.40	6.94	8.47
	8H	10.18	10.71	11.31	11.83	13.35	5.37	5.89	6.49	7.01	8.53
	12H	10.24	10.74	11.37	11.85	13.40	5.40	5.90	6.53	7.01	8.56
4H	2H	7.39	7.99	8.52	9.09	10.61	3.94	4.54	5.06	5.64	7.16
	3H	9.21	9.70	10.33	10.83	12.36	5.27	5.77	6.40	6.89	8.43
	4H	9.89	10.35	11.02	11.46	13.02	5.81	6.26	6.94	7.38	8.93
	6H	10.39	10.78	11.53	11.92	13.47	6.21	6.60	7.35	7.74	9.29
	8H	10.56	10.93	11.70	12.06	13.62	6.33	6.70	7.47	7.83	9.39
	12H	10.65	10.98	11.80	12.12	13.69	6.39	6.72	7.54	7.86	9.43
8H	4H	9.84	10.21	10.98	11.34	12.90	6.07	6.44	7.21	7.57	9.13
	6H	10.40	10.70	11.56	11.87	13.43	6.58	6.88	7.74	8.05	9.61
	8H	10.61	10.88	11.78	12.03	13.61	6.76	7.03	7.93	8.18	9.76
	12H	10.74	10.97	11.91	12.12	13.73	6.87	7.11	8.04	8.25	9.87
12H	4H	9.79	10.12	10.94	11.27	12.83	6.07	6.40	7.22	7.55	9.11
	6H	10.37	10.64	11.54	11.79	13.37	6.63	6.89	7.79	8.04	9.62
	8H	10.58	10.82	11.75	11.97	13.58	6.83	7.06	7.99	8.21	9.82