

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: P911070

Luminaire Tested: DFN2DIP-PN2F0-030D060US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

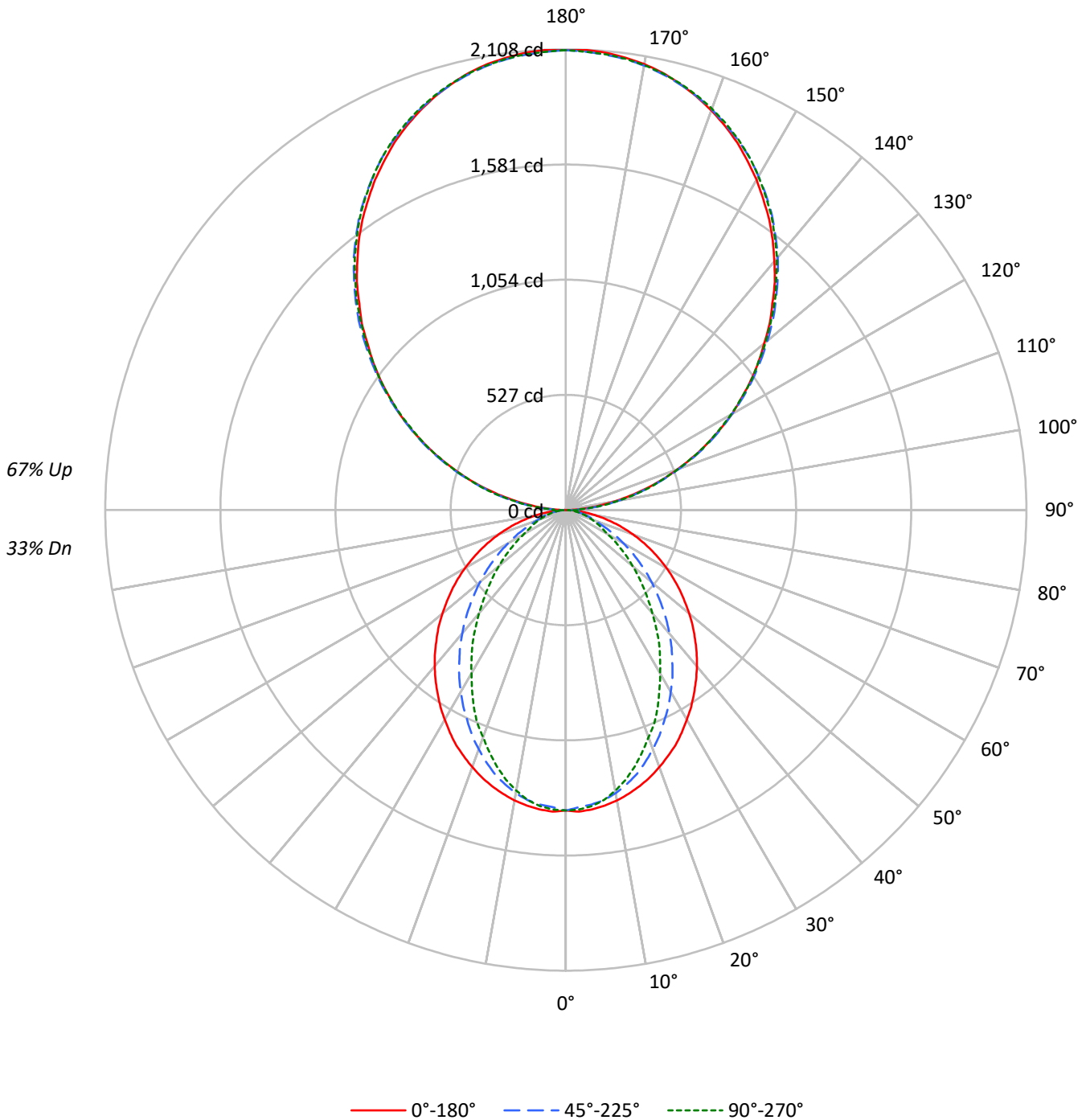
Test Method: LM-79-2019  
Report Number: P911070  
REPORT IS A COMBINATION OF REPORTS P899504 AND P896349  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN2F0-030D060US850-RLLFLL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8716.7 lumens  
Efficiency: N/A  
Efficacy: 108.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 80.5  
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	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28				28
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29	24				24
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25	21				21
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22	18				18
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19	16				16
6	61	49	42	36	55	45	38	33	36	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	19	17	15	13				13
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14	11				11
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	25	21	18	20	17	15	15	13	11	9				9

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

	0°	45°	90°
0°	2978	2978	2978
5°	2978	2925	2945
10°	2944	2861	2845
15°	2898	2760	2693
20°	2840	2624	2508
25°	2780	2472	2329
30°	2702	2317	2104
35°	2624	2152	1906
40°	2545	1981	1680
45°	2454	1792	1476
50°	2359	1602	1276
55°	2260	1400	1085
60°	2144	1190	889
65°	2011	977	795
70°	1850	778	713
75°	1647	674	640
80°	1355	548	542
85°	886	340	384

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2835 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	128.9	1.5
10°-20°	353.8	4.1
20°-30°	496.7	5.7
30°-40°	541.4	6.2
40°-50°	497.6	5.7
50°-60°	390.8	4.5
60°-70°	254.4	2.9
70°-80°	130.9	1.5
80°-90°	39.4	0.5
90°-100°	130.2	1.5
100°-110°	413.7	4.7
110°-120°	708.0	8.1
120°-130°	931.2	10.7
130°-140°	1045.3	12.0
140°-150°	1025.0	11.8
150°-160°	859.8	9.9
160°-170°	570.2	6.5
170°-180°	199.3	2.3
0°-30°	979.3	11.2
0°-40°	1520.7	17.4
0°-60°	2409.2	27.6
0°-90°	2833.9	32.5
90°-120°	1252.0	14.4
90°-150°	4253.5	48.8
90°-180°	5883.0	67.5
0°-180°	8716.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1375	1375	1375	1375	1375	
5°	1375	1369	1353	1364	1360	130
15°	1308	1294	1252	1228	1216	369
25°	1187	1147	1065	1014	995	546
35°	1023	959	850	772	744	640
45°	836	753	622	534	504	646
55°	636	539	404	330	306	568
65°	429	328	216	174	170	426
75°	229	142	100	91	90	242
85°	54	27	24	24	24	61
90°	2	23	62	58	60	9
95°	93	110	114	114	110	103
105°	382	387	391	394	394	403
115°	710	721	718	716	710	703
125°	1034	1049	1044	1039	1037	924
135°	1337	1356	1360	1358	1353	1033
145°	1623	1636	1646	1648	1641	1014
155°	1856	1861	1866	1875	1870	854
165°	2019	2017	2017	2030	2021	569
175°	2101	2096	2092	2104	2094	200
180°	2104	2104	2104	2104	2104	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1375.0	1375.0	1375.0	1375.0	1375.0
2.5°	1381.3	1375.0	1361.3	1373.8	1371.4
5°	1375.0	1368.8	1352.6	1363.8	1360.1
7.5°	1363.8	1356.4	1339.0	1343.9	1337.7
10°	1348.9	1340.2	1315.4	1311.5	1304.2
12.5°	1330.2	1319.0	1285.4	1278.0	1264.3
15°	1307.8	1294.1	1251.8	1228.2	1215.8
17.5°	1281.7	1261.8	1209.5	1182.2	1162.2
20°	1251.8	1226.9	1164.7	1133.7	1106.2
22.5°	1219.6	1190.8	1118.6	1076.4	1057.8
25°	1187.2	1147.3	1065.2	1014.2	995.4
27.5°	1148.6	1106.2	1015.4	957.0	928.2
30°	1107.6	1060.2	960.6	897.3	863.6
32.5°	1067.6	1010.4	908.5	833.7	802.6
35°	1022.9	959.4	849.9	771.5	744.1
37.5°	979.4	910.8	795.2	709.2	678.3
40°	933.3	858.7	737.9	649.5	617.3
42.5°	886.0	806.5	680.7	588.5	557.5
45°	836.3	752.8	622.3	533.8	503.9
47.5°	788.9	700.7	566.3	477.8	450.5
50°	736.7	648.3	511.5	425.5	399.5
52.5°	685.6	592.3	459.2	377.1	353.4
55°	635.8	538.8	404.3	329.8	306.2
57.5°	584.9	485.3	356.0	286.2	266.3
60°	532.5	433.1	304.9	241.4	221.6
62.5°	481.6	382.1	261.3	201.6	191.7
65°	429.3	328.5	216.5	174.2	170.5
67.5°	379.6	278.7	174.2	153.0	149.3
70°	327.3	230.2	144.3	131.9	126.9
72.5°	277.5	185.3	120.7	110.8	108.2
75°	228.9	141.8	99.6	90.8	89.6
77.5°	180.4	100.7	78.4	73.4	70.9
80°	135.6	72.2	59.7	54.8	54.8
82.5°	94.5	48.6	41.0	38.6	38.6
85°	53.5	27.3	23.6	23.6	23.6
87.5°	20.0	9.9	9.9	8.8	8.8
90°	1.9	22.8	62.2	58.3	60.2
92.5°	39.4	53.3	55.2	57.1	57.1
95°	92.6	110.3	113.6	113.6	110.3
97.5°	154.2	170.7	177.7	177.7	177.7
100°	225.2	239.8	244.9	244.9	243.0
102.5°	300.1	310.9	317.8	319.7	317.8
105°	381.9	387.0	390.8	394.0	394.0
107.5°	463.1	470.8	470.8	472.0	463.1
110°	541.9	551.9	551.9	551.9	546.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	626.8	637.6	635.7	630.6	626.8
115°	710.5	720.7	717.5	715.6	710.5
117.5°	793.7	807.7	798.7	793.7	788.6
120°	877.4	891.4	877.4	877.4	871.7
122.5°	953.5	971.3	962.4	957.4	953.5
125°	1033.5	1049.3	1044.2	1038.6	1036.7
127.5°	1111.6	1131.2	1124.2	1116.7	1111.6
130°	1184.5	1207.4	1204.2	1200.4	1193.4
132.5°	1266.4	1284.1	1285.3	1276.5	1271.4
135°	1336.8	1356.4	1360.2	1358.3	1353.2
137.5°	1415.4	1431.3	1434.5	1433.2	1425.6
140°	1484.6	1500.5	1509.3	1509.3	1502.4
142.5°	1555.6	1571.5	1576.6	1578.4	1571.5
145°	1622.9	1635.6	1645.8	1647.6	1640.7
147.5°	1683.1	1699.0	1706.6	1709.7	1702.8
150°	1745.3	1756.1	1763.1	1768.7	1763.1
152.5°	1800.5	1811.3	1820.2	1827.2	1820.2
155°	1855.7	1860.8	1866.4	1875.4	1869.7
157.5°	1903.3	1907.1	1910.3	1923.0	1914.1
160°	1945.9	1949.6	1951.5	1962.3	1954.7
162.5°	1985.1	1985.1	1987.0	1999.1	1990.2
165°	2018.7	2016.8	2016.8	2029.6	2020.7
167.5°	2049.2	2043.6	2043.6	2056.2	2047.3
170°	2072.1	2067.0	2065.1	2077.7	2067.0
172.5°	2087.9	2082.8	2080.9	2093.6	2082.8
175°	2100.6	2095.6	2091.7	2104.4	2093.6
177.5°	2107.5	2102.6	2098.7	2109.4	2098.7
180°	2104.4	2104.4	2104.4	2104.4	2104.4



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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	8.92	9.63	10.02	10.72	12.22	4.89	5.59	5.99	6.69	8.19
	3H	10.57	11.20	11.68	12.30	13.82	6.05	6.68	7.16	7.78	9.30
	4H	11.16	11.76	12.27	12.86	14.38	6.48	7.08	7.60	8.18	9.71
	6H	11.56	12.11	12.68	13.21	14.75	6.78	7.33	7.91	8.44	9.97
	8H	11.67	12.19	12.80	13.31	14.84	6.86	7.38	7.99	8.51	10.04
	12H	11.72	12.22	12.85	13.33	14.88	6.89	7.39	8.03	8.50	10.06
4H	2H	8.92	9.52	10.04	10.62	12.15	5.46	6.06	6.58	7.16	8.68
	3H	10.71	11.21	11.84	12.34	13.88	6.78	7.27	7.91	8.40	9.94
	4H	11.38	11.84	12.52	12.96	14.52	7.30	7.76	8.44	8.88	10.44
	6H	11.87	12.26	13.01	13.41	14.96	7.70	8.09	8.84	9.23	10.78
	8H	12.03	12.40	13.17	13.53	15.10	7.82	8.18	8.96	9.31	10.88
	12H	12.11	12.44	13.27	13.59	15.16	7.86	8.20	9.02	9.34	10.91
8H	4H	11.34	11.70	12.48	12.84	14.40	7.56	7.93	8.70	9.06	10.63
	6H	11.88	12.18	13.04	13.35	14.92	8.05	8.36	9.21	9.53	11.09
	8H	12.08	12.34	13.25	13.50	15.08	8.23	8.49	9.40	9.65	11.23
	12H	12.20	12.43	13.37	13.58	15.20	8.33	8.56	9.50	9.71	11.33
12H	4H	11.28	11.61	12.44	12.76	14.33	7.56	7.89	8.72	9.03	10.60
	6H	11.85	12.11	13.02	13.27	14.85	8.10	8.36	9.26	9.51	11.10
	8H	12.05	12.28	13.22	13.43	15.05	8.29	8.52	9.46	9.67	11.29