

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: P919702

Luminaire Tested: DFN2DIP-PN4F0-090D060US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919702
REPORT IS A COMBINATION OF REPORTS P899656 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D060US935-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

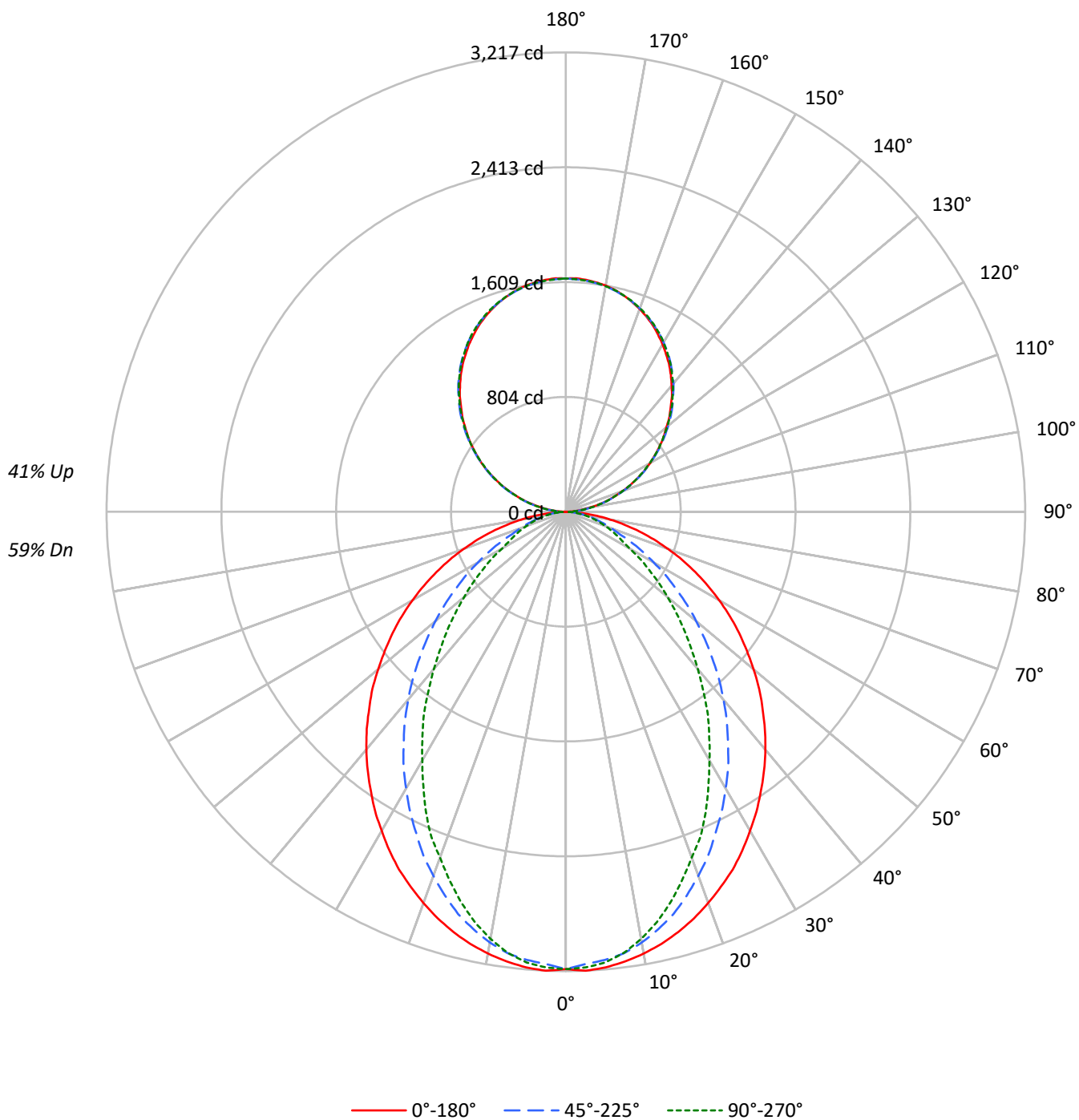
Lumens per Lamp: N/A
Luminaire Lumens: 11158.5 lumens
Efficiency: N/A
Efficacy: 83.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2338	2338	2338
5°	2342	2301	2316
10°	2318	2256	2241
15°	2286	2182	2125
20°	2244	2079	1982
25°	2201	1964	1844
30°	2143	1847	1670
35°	2086	1720	1516
40°	2028	1589	1340
45°	1961	1443	1180
50°	1891	1296	1024
55°	1819	1139	874
60°	1735	975	720
65°	1638	807	649
70°	1521	651	588
75°	1374	575	536
80°	1160	483	466
85°	808	324	353

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1961 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	2.7
10°-20°	824.0	7.4
20°-30°	1156.9	10.4
30°-40°	1261.0	11.3
40°-50°	1159.0	10.4
50°-60°	910.3	8.2
60°-70°	592.5	5.3
70°-80°	305.0	2.7
80°-90°	82.5	0.7
90°-100°	101.1	0.9
100°-110°	321.2	2.9
110°-120°	549.7	4.9
120°-130°	723.0	6.5
130°-140°	811.5	7.3
140°-150°	795.8	7.1
150°-160°	667.5	6.0
160°-170°	442.7	4.0
170°-180°	154.7	1.4
0°-30°	2281.0	20.4
0°-40°	3542.0	31.7
0°-60°	5611.3	50.3
0°-90°	6591.3	59.1
90°-120°	972.0	8.7
90°-150°	3302.3	29.6
90°-180°	4567.0	40.9
0°-180°	11158.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	2	18	48	45	47	11
95°	72	86	88	88	86	80
105°	296	300	303	306	306	313
115°	552	560	557	556	552	546
125°	802	815	811	806	805	717
135°	1038	1053	1056	1055	1051	802
145°	1260	1270	1278	1279	1274	787
155°	1441	1445	1449	1456	1452	663
165°	1567	1566	1566	1576	1569	442
175°	1631	1627	1624	1634	1625	155
180°	1634	1634	1634	1634	1634	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	1.5	17.7	48.3	45.3	46.8
92.5°	30.6	41.4	42.9	44.3	44.3
95°	71.9	85.7	88.2	88.2	85.7
97.5°	119.7	132.5	137.9	137.9	137.9
100°	174.9	186.1	190.1	190.1	188.6
102.5°	233.0	241.3	246.8	248.2	246.8
105°	296.5	300.5	303.4	305.9	305.9
107.5°	359.6	365.5	365.5	366.4	359.6
110°	420.7	428.5	428.5	428.5	424.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	486.6	495.0	493.5	489.6	486.6
115°	551.6	559.6	557.1	555.6	551.6
117.5°	616.2	627.1	620.1	616.2	612.3
120°	681.2	692.1	681.2	681.2	676.7
122.5°	740.3	754.1	747.2	743.3	740.3
125°	802.4	814.7	810.7	806.3	804.9
127.5°	863.0	878.2	872.8	866.9	863.0
130°	919.6	937.4	934.9	931.9	926.5
132.5°	983.2	996.9	997.9	991.0	987.0
135°	1037.8	1053.1	1056.0	1054.6	1050.6
137.5°	1098.9	1111.2	1113.7	1112.7	1106.8
140°	1152.6	1164.9	1171.8	1171.8	1166.4
142.5°	1207.7	1220.0	1224.0	1225.5	1220.0
145°	1260.0	1269.8	1277.7	1279.2	1273.8
147.5°	1306.7	1319.0	1325.0	1327.4	1322.0
150°	1355.0	1363.4	1368.8	1373.2	1368.8
152.5°	1397.8	1406.3	1413.2	1418.6	1413.2
155°	1440.7	1444.7	1449.1	1456.0	1451.6
157.5°	1477.6	1480.7	1483.1	1493.0	1486.1
160°	1510.7	1513.6	1515.1	1523.4	1517.6
162.5°	1541.2	1541.2	1542.6	1552.0	1545.1
165°	1567.3	1565.8	1565.8	1575.7	1568.8
167.5°	1591.0	1586.6	1586.6	1596.4	1589.5
170°	1608.7	1604.7	1603.3	1613.1	1604.7
172.5°	1621.0	1617.0	1615.6	1625.4	1617.0
175°	1630.8	1626.9	1623.9	1633.8	1625.4
177.5°	1636.2	1632.4	1629.4	1637.7	1629.4
180°	1633.8	1633.8	1633.8	1633.8	1633.8

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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	10.91	11.82	11.79	12.72	13.86	6.88	7.79	7.76	8.68	9.82
	3H	12.60	13.41	13.49	14.32	15.48	8.07	8.89	8.97	9.79	10.96
	4H	13.21	13.98	14.12	14.89	16.07	8.53	9.29	9.44	10.21	11.38
	6H	13.64	14.35	14.56	15.27	16.45	8.85	9.56	9.77	10.48	11.67
	8H	13.77	14.44	14.70	15.38	16.56	8.94	9.62	9.87	10.55	11.74
	12H	13.83	14.48	14.77	15.41	16.62	8.99	9.63	9.93	10.56	11.77
4H	2H	10.94	11.71	11.85	12.62	13.79	7.48	8.25	8.40	9.16	10.34
	3H	12.78	13.42	13.70	14.36	15.55	8.84	9.48	9.77	10.42	11.61
	4H	13.48	14.06	14.41	15.00	16.21	9.39	9.97	10.33	10.91	12.13
	6H	14.00	14.50	14.95	15.46	16.68	9.82	10.32	10.77	11.28	12.50
	8H	14.18	14.64	15.13	15.60	16.83	9.95	10.42	10.90	11.37	12.60
	12H	14.28	14.70	15.25	15.67	16.90	10.02	10.44	10.99	11.41	12.65
8H	4H	13.45	13.92	14.40	14.87	16.10	9.68	10.15	10.63	11.10	12.33
	6H	14.02	14.41	15.00	15.41	16.63	10.20	10.59	11.18	11.59	12.81
	8H	14.24	14.58	15.23	15.57	16.81	10.40	10.74	11.38	11.72	12.97
	12H	14.38	14.68	15.37	15.67	16.96	10.52	10.82	11.51	11.80	13.09
12H	4H	13.41	13.83	14.38	14.80	16.03	9.69	10.11	10.66	11.08	12.32
	6H	14.00	14.34	14.98	15.33	16.57	10.25	10.59	11.24	11.58	12.83
	8H	14.22	14.52	15.21	15.50	16.80	10.47	10.77	11.46	11.75	13.04