

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: P914978

Luminaire Tested: DFN2DIP-SQ4F0-090D110US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914978
REPORT IS A COMBINATION OF REPORTS P900156 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

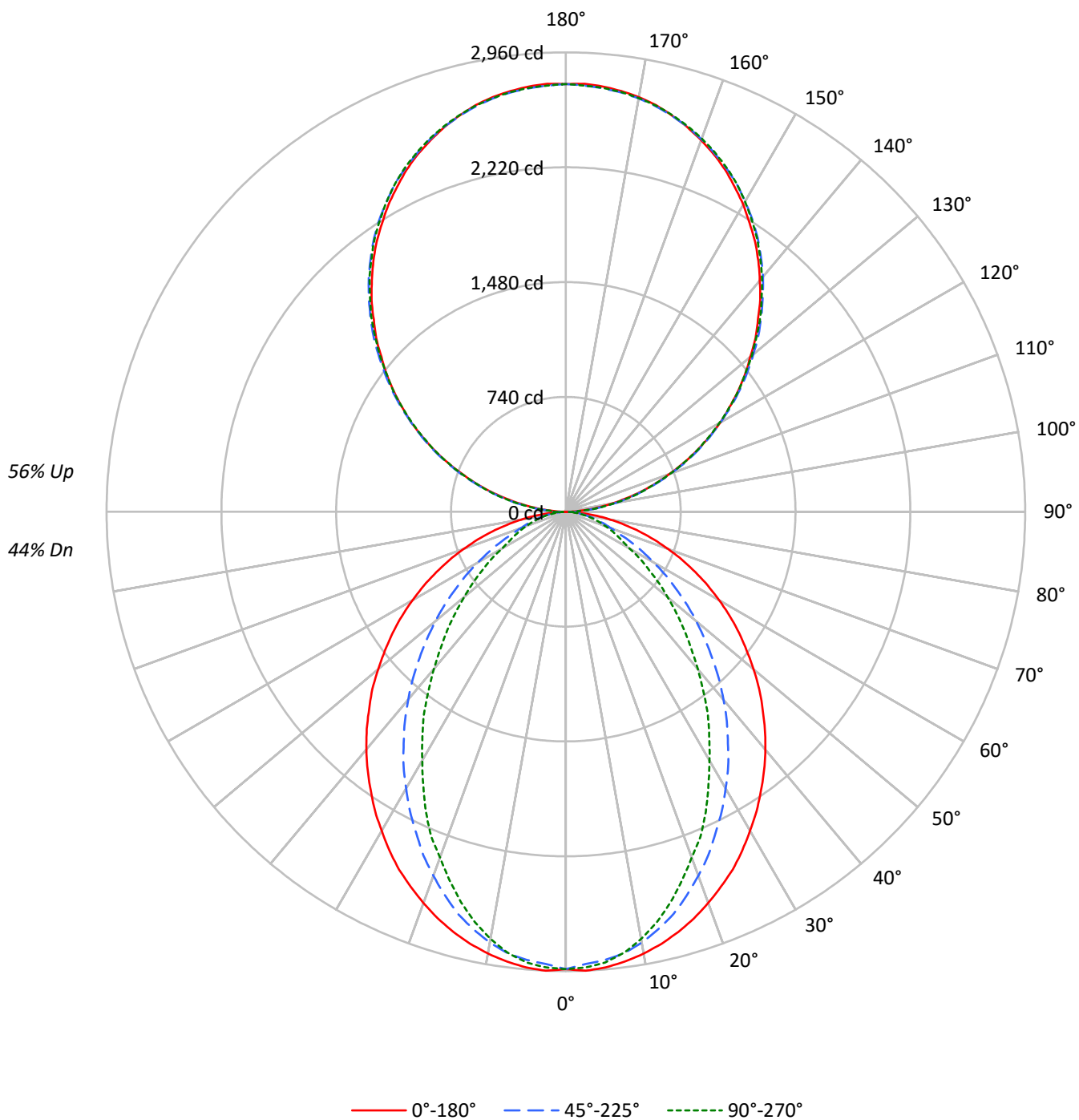
Lumens per Lamp: N/A
Luminaire Lumens: 13772.1 lumens
Efficiency: N/A
Efficacy: 83.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51			44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44			38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37			32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32			28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28			24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25			21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22			19
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20			17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18			15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16			14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2068	2068	2068
5°	2071	2035	2048
10°	2050	1996	1982
15°	2022	1930	1880
20°	1985	1840	1754
25°	1947	1738	1632
30°	1895	1634	1478
35°	1845	1522	1342
40°	1794	1406	1186
45°	1734	1277	1045
50°	1672	1147	907
55°	1608	1008	774
60°	1534	863	638
65°	1448	715	575
70°	1345	577	521
75°	1214	510	475
80°	1026	429	414
85°	714	288	315

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2168 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.2	2.0
10°-20°	758.1	5.5
20°-30°	1064.4	7.7
30°-40°	1160.3	8.4
40°-50°	1066.4	7.7
50°-60°	837.5	6.1
60°-70°	545.1	4.0
70°-80°	280.6	2.0
80°-90°	79.5	0.6
90°-100°	170.5	1.2
100°-110°	541.8	3.9
110°-120°	927.3	6.7
120°-130°	1219.5	8.9
130°-140°	1368.8	9.9
140°-150°	1342.3	9.7
150°-160°	1126.0	8.2
160°-170°	746.7	5.4
170°-180°	261.0	1.9
0°-30°	2098.7	15.2
0°-40°	3258.9	23.7
0°-60°	5162.8	37.5
0°-90°	6068.0	44.1
90°-120°	1639.7	11.9
90°-150°	5570.3	40.4
90°-180°	7704.0	55.9
0°-180°	13772.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	2	30	81	76	79	14
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9

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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	9.10	9.88	10.11	10.90	12.26	5.06	5.85	6.07	6.86	8.22
	3H	10.78	11.48	11.80	12.51	13.88	6.25	6.95	7.27	7.97	9.35
	4H	11.39	12.05	12.42	13.08	14.47	6.70	7.36	7.73	8.39	9.77
	6H	11.81	12.42	12.86	13.46	14.85	7.01	7.62	8.06	8.66	10.05
	8H	11.94	12.52	12.99	13.57	14.96	7.10	7.68	8.15	8.73	10.13
	12H	12.00	12.55	13.06	13.60	15.01	7.15	7.70	8.20	8.74	10.16
4H	2H	9.11	9.78	10.16	10.81	12.19	5.65	6.32	6.70	7.35	8.73
	3H	10.94	11.49	11.99	12.55	13.95	7.00	7.55	8.05	8.61	10.01
	4H	11.64	12.14	12.69	13.19	14.61	7.55	8.05	8.60	9.10	10.52
	6H	12.15	12.59	13.22	13.66	15.07	7.96	8.40	9.03	9.47	10.88
	8H	12.33	12.73	13.40	13.80	15.23	8.09	8.50	9.16	9.56	10.99
	12H	12.43	12.79	13.51	13.87	15.30	8.16	8.52	9.24	9.60	11.03
8H	4H	11.60	12.01	12.67	13.07	14.50	7.83	8.23	8.89	9.30	10.72
	6H	12.17	12.50	13.26	13.61	15.04	8.34	8.68	9.43	9.78	11.21
	8H	12.39	12.68	13.49	13.77	15.22	8.54	8.83	9.63	9.92	11.37
	12H	12.53	12.79	13.63	13.87	15.36	8.65	8.91	9.75	10.00	11.48
12H	4H	11.55	11.92	12.63	13.00	14.43	7.83	8.19	8.91	9.27	10.71
	6H	12.15	12.44	13.24	13.53	14.97	8.39	8.69	9.49	9.78	11.22
	8H	12.37	12.62	13.47	13.71	15.20	8.60	8.86	9.70	9.95	11.43