

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: P925002

Luminaire Tested: DFN2DIP-PN4F0-040D120US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925002
REPORT IS A COMBINATION OF REPORTS P899754 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D120US950-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

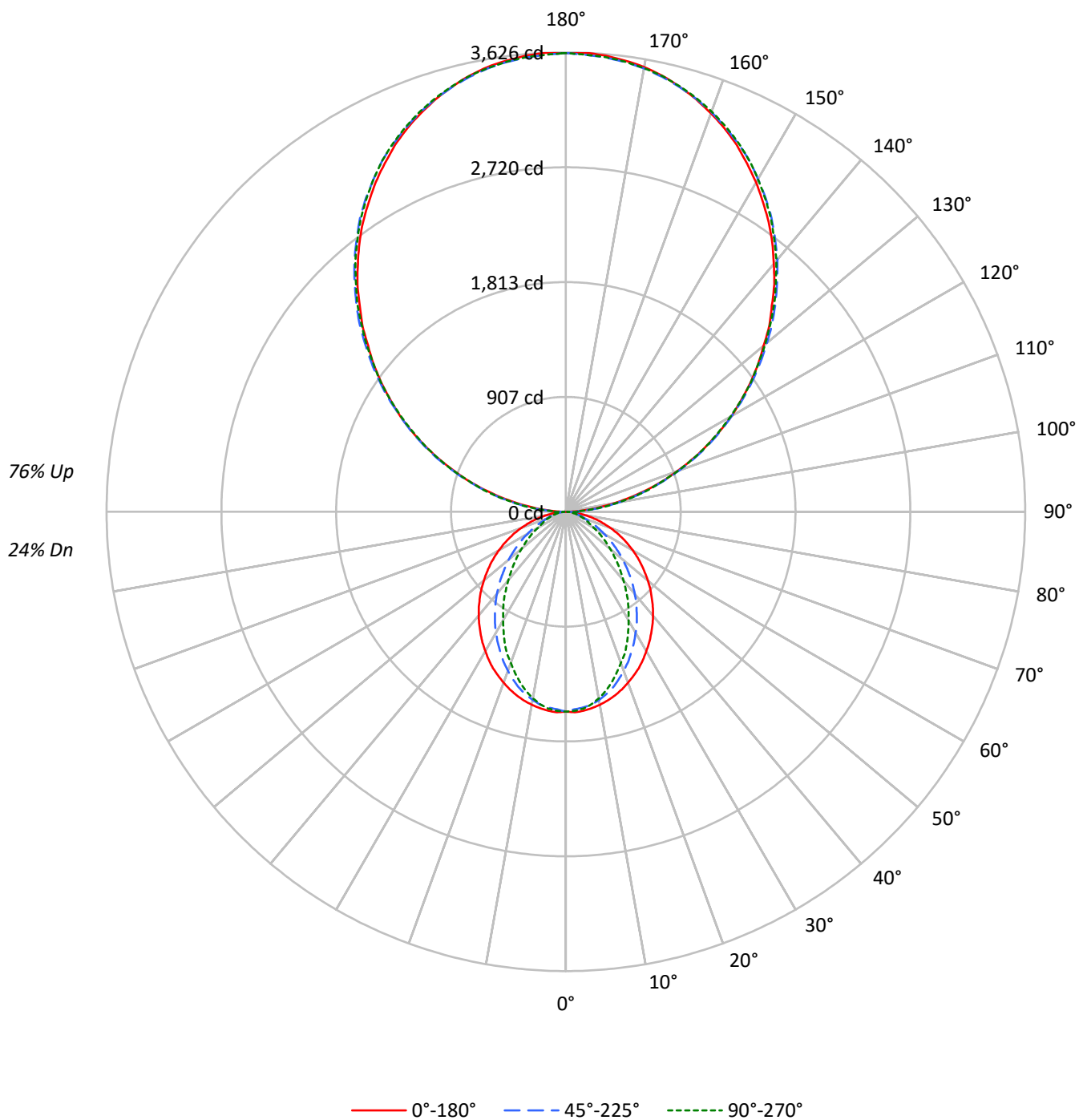
Lumens per Lamp: N/A
Luminaire Lumens: 13375.1 lumens
Efficiency: N/A
Efficacy: 97.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 136.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	20
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	64	54	46	40	57	48	42	37	38	33	29	28	25	22	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	24	28	23	20	21	18	16	14	12	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1151	1151	1151
5°	1153	1133	1140
10°	1142	1111	1104
15°	1126	1075	1046
20°	1105	1024	976
25°	1084	967	908
30°	1055	909	822
35°	1027	847	747
40°	999	782	660
45°	966	711	581
50°	931	638	504
55°	896	561	431
60°	854	480	355
65°	807	397	319
70°	749	321	289
75°	676	283	264
80°	571	238	230
85°	398	160	174

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°	147.8	1.1
10°-20°	405.8	3.0
20°-30°	569.7	4.3
30°-40°	621.0	4.6
40°-50°	570.8	4.3
50°-60°	448.2	3.4
60°-70°	291.8	2.2
70°-80°	150.2	1.1
80°-90°	48.6	0.4
90°-100°	224.0	1.7
100°-110°	711.8	5.3
110°-120°	1218.2	9.1
120°-130°	1602.1	12.0
130°-140°	1798.3	13.4
140°-150°	1763.5	13.2
150°-160°	1479.3	11.1
160°-170°	981.0	7.3
170°-180°	342.9	2.6
0°-30°	1123.3	8.4
0°-40°	1744.3	13.0
0°-60°	2763.3	20.7
0°-90°	3253.9	24.3
90°-120°	2154.1	16.1
90°-150°	7318.0	54.7
90°-180°	10121.0	75.7
0°-180°	13375.1	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°	3	39	107	100	104	13
95°	159	190	195	195	190	177
105°	657	666	672	678	678	693
115°	1222	1240	1234	1231	1222	1209
125°	1778	1805	1797	1787	1784	1589
135°	2300	2334	2340	2337	2328	1778
145°	2792	2814	2831	2835	2823	1745
155°	3193	3201	3211	3226	3217	1470
165°	3473	3470	3470	3492	3476	980
175°	3614	3605	3599	3620	3602	343
180°	3620	3620	3620	3620	3620	

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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°	3.2	39.3	106.9	100.5	103.7
92.5°	67.6	91.7	94.9	98.3	98.3
95°	159.3	189.9	195.4	195.4	189.9
97.5°	265.2	293.6	305.7	305.7	305.7
100°	387.5	412.6	421.3	421.3	418.0
102.5°	516.3	534.8	546.8	550.2	546.8
105°	657.1	665.8	672.4	677.8	677.8
107.5°	796.8	809.9	809.9	812.0	796.8
110°	932.2	949.6	949.6	949.6	940.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.4	1097.0	1093.7	1085.0	1078.4
115°	1222.5	1240.0	1234.5	1231.2	1222.5
117.5°	1365.5	1389.5	1374.2	1365.5	1356.8
120°	1509.6	1533.6	1509.6	1509.6	1499.8
122.5°	1640.6	1671.1	1655.9	1647.1	1640.6
125°	1778.1	1805.3	1796.7	1786.8	1783.5
127.5°	1912.4	1946.2	1934.1	1921.1	1912.4
130°	2037.8	2077.1	2071.7	2065.1	2053.1
132.5°	2178.6	2209.3	2211.4	2196.1	2187.4
135°	2299.8	2333.7	2340.3	2336.9	2328.2
137.5°	2435.2	2462.5	2467.9	2465.7	2452.6
140°	2554.1	2581.4	2596.7	2596.7	2584.7
142.5°	2676.4	2703.7	2712.4	2715.7	2703.7
145°	2792.1	2813.9	2831.4	2834.7	2822.7
147.5°	2895.8	2923.1	2936.2	2941.7	2929.6
150°	3002.8	3021.3	3033.3	3043.2	3033.3
152.5°	3097.7	3116.2	3131.6	3143.6	3131.6
155°	3192.7	3201.4	3211.3	3226.5	3216.7
157.5°	3274.6	3281.1	3286.5	3308.4	3293.1
160°	3347.7	3354.3	3357.5	3376.1	3362.9
162.5°	3415.3	3415.3	3418.7	3439.4	3424.1
165°	3473.2	3470.0	3470.0	3491.7	3476.5
167.5°	3525.6	3515.8	3515.8	3537.6	3522.4
170°	3564.9	3556.1	3552.9	3574.7	3556.1
172.5°	3592.2	3583.4	3580.2	3602.0	3583.4
175°	3614.0	3605.3	3598.8	3620.5	3602.0
177.5°	3626.1	3617.3	3610.7	3629.3	3610.7
180°	3620.5	3620.5	3620.5	3620.5	3620.5

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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	4.56	5.22	5.71	6.35	7.95	0.52	1.18	1.68	2.32	3.92
	3H	6.23	6.81	7.39	7.96	9.57	1.70	2.29	2.86	3.43	5.05
	4H	6.83	7.39	8.00	8.53	10.15	2.14	2.70	3.31	3.85	5.46
	6H	7.24	7.76	8.42	8.91	10.53	2.45	2.97	3.63	4.12	5.75
	8H	7.37	7.85	8.55	9.02	10.64	2.54	3.03	3.72	4.19	5.81
	12H	7.42	7.89	8.61	9.04	10.69	2.58	3.04	3.76	4.20	5.84
4H	2H	4.56	5.11	5.73	6.26	7.88	1.10	1.66	2.28	2.80	4.42
	3H	6.37	6.84	7.55	8.01	9.64	2.43	2.90	3.62	4.07	5.70
	4H	7.06	7.49	8.24	8.65	10.30	2.98	3.40	4.16	4.56	6.21
	6H	7.57	7.93	8.76	9.12	10.75	3.39	3.75	4.57	4.94	6.57
	8H	7.74	8.08	8.93	9.26	10.91	3.51	3.85	4.70	5.03	6.68
	12H	7.83	8.14	9.03	9.32	10.98	3.57	3.88	4.77	5.07	6.72
8H	4H	7.01	7.36	8.20	8.53	10.18	3.24	3.59	4.43	4.76	6.41
	6H	7.58	7.86	8.78	9.08	10.73	3.76	4.04	4.96	5.26	6.91
	8H	7.79	8.04	9.01	9.23	10.90	3.95	4.19	5.16	5.39	7.06
	12H	7.93	8.14	9.14	9.33	11.04	4.06	4.28	5.28	5.47	7.17
12H	4H	6.96	7.27	8.16	8.45	10.11	3.24	3.55	4.44	4.74	6.40
	6H	7.55	7.80	8.76	8.99	10.66	3.81	4.05	5.02	5.25	6.92
	8H	7.77	7.98	8.98	9.17	10.88	4.01	4.23	5.23	5.42	7.12

END OF REPORT