

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: P910030

Luminaire Tested: DFN2DIP-TR4F0-040D120US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910030
REPORT IS A COMBINATION OF REPORTS P900513 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D120US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

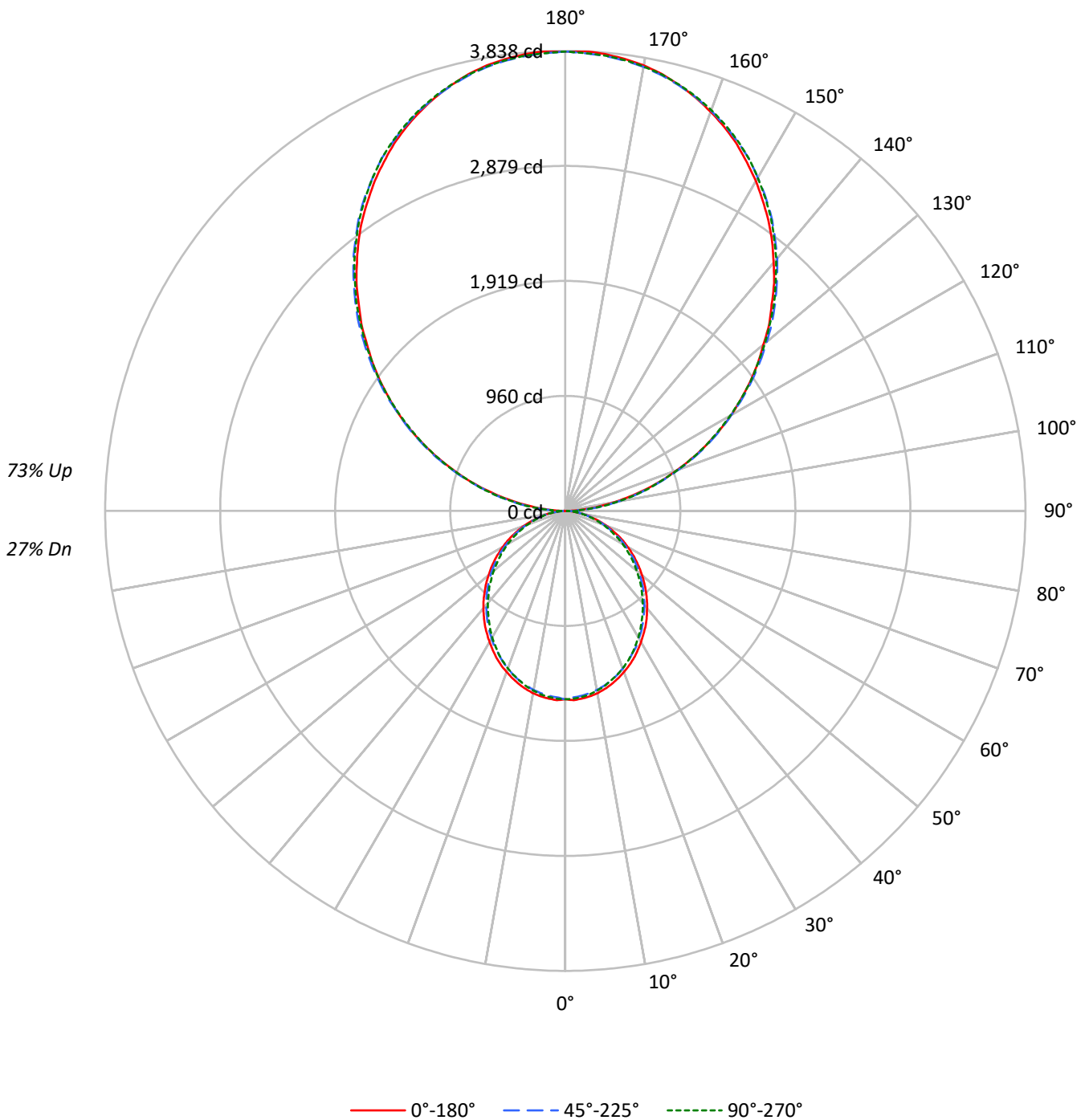
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14723.8 lumens
Efficiency: N/A
Efficacy: 119.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 123.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35	27				27
1	93	88	85	81	83	79	76	73	62	60	58	46	44	43	31	30	30	23				23
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25	19				19
3	77	68	61	55	68	61	55	50	48	44	40	35	33	30	24	23	21	16				16
4	70	60	52	47	62	54	47	42	42	38	34	32	29	26	22	20	18	14				14
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16	12				12
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14	11				11
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12	9				9
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11	8				8
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	11	10	8				8
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	10	9	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1249	1249	1249
5°	1251	1231	1240
10°	1241	1215	1223
15°	1222	1195	1196
20°	1198	1167	1170
25°	1173	1134	1138
30°	1142	1103	1099
35°	1113	1066	1057
40°	1078	1029	1017
45°	1042	992	977
50°	1003	954	930
55°	962	909	886
60°	916	856	837
65°	865	800	778
70°	801	733	715
75°	712	653	657
80°	605	550	546
85°	438	373	362

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2988 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.0
10°-20°	416.2	2.8
20°-30°	611.7	4.2
30°-40°	710.5	4.8
40°-50°	709.6	4.8
50°-60°	618.7	4.2
60°-70°	457.4	3.1
70°-80°	258.8	1.8
80°-90°	79.2	0.5
90°-100°	237.2	1.6
100°-110°	753.5	5.1
110°-120°	1289.5	8.8
120°-130°	1696.0	11.5
130°-140°	1903.6	12.9
140°-150°	1866.7	12.7
150°-160°	1565.9	10.6
160°-170°	1038.5	7.1
170°-180°	363.0	2.5
0°-30°	1175.9	8.0
0°-40°	1886.3	12.8
0°-60°	3214.6	21.8
0°-90°	4009.9	27.2
90°-120°	2280.2	15.5
90°-150°	7746.5	52.6
90°-180°	10714.0	72.8
0°-180°	14723.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	3	42	113	106	110	14
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	



TEST NUMBER: P910030

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5



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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	5.43	6.12	6.56	7.24	8.80	5.00	5.68	6.13	6.81	8.37
	3H	7.07	7.69	8.21	8.82	10.40	6.60	7.22	7.74	8.35	9.93
	4H	7.65	8.24	8.80	9.37	10.95	7.18	7.77	8.33	8.90	10.48
	6H	8.04	8.58	9.20	9.72	11.31	7.57	8.11	8.73	9.24	10.84
	8H	8.14	8.66	9.30	9.81	11.39	7.67	8.18	8.83	9.33	10.92
	12H	8.19	8.67	9.35	9.82	11.43	7.71	8.19	8.87	9.33	10.95
4H	2H	5.87	6.45	7.02	7.59	9.17	5.52	6.11	6.68	7.24	8.82
	3H	7.72	8.21	8.88	9.36	10.96	7.33	7.81	8.49	8.97	10.57
	4H	8.42	8.87	9.59	10.02	11.64	8.02	8.47	9.18	9.61	11.23
	6H	8.93	9.31	10.10	10.48	12.09	8.52	8.91	9.69	10.07	11.68
	8H	9.08	9.43	10.24	10.59	12.22	8.66	9.02	9.83	10.18	11.80
	12H	9.14	9.47	10.32	10.64	12.26	8.72	9.04	9.90	10.21	11.84
8H	4H	8.61	8.97	9.77	10.13	11.75	8.25	8.61	9.41	9.77	11.39
	6H	9.23	9.53	10.42	10.73	12.35	8.87	9.17	10.06	10.37	11.99
	8H	9.45	9.71	10.64	10.89	12.53	9.08	9.34	10.27	10.52	12.16
	12H	9.57	9.80	10.77	10.98	12.65	9.19	9.42	10.39	10.59	12.27
12H	4H	8.58	8.91	9.77	10.08	11.71	8.23	8.56	9.42	9.73	11.36
	6H	9.26	9.52	10.45	10.70	12.34	8.91	9.17	10.10	10.35	11.99
	8H	9.49	9.72	10.69	10.90	12.57	9.14	9.36	10.33	10.54	12.21