

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: P912704

Luminaire Tested: DFN2DIP-TR3F0-090D040US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912704
REPORT IS A COMBINATION OF REPORTS P900297 AND P897195
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-090D040US850-FLLFLL
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

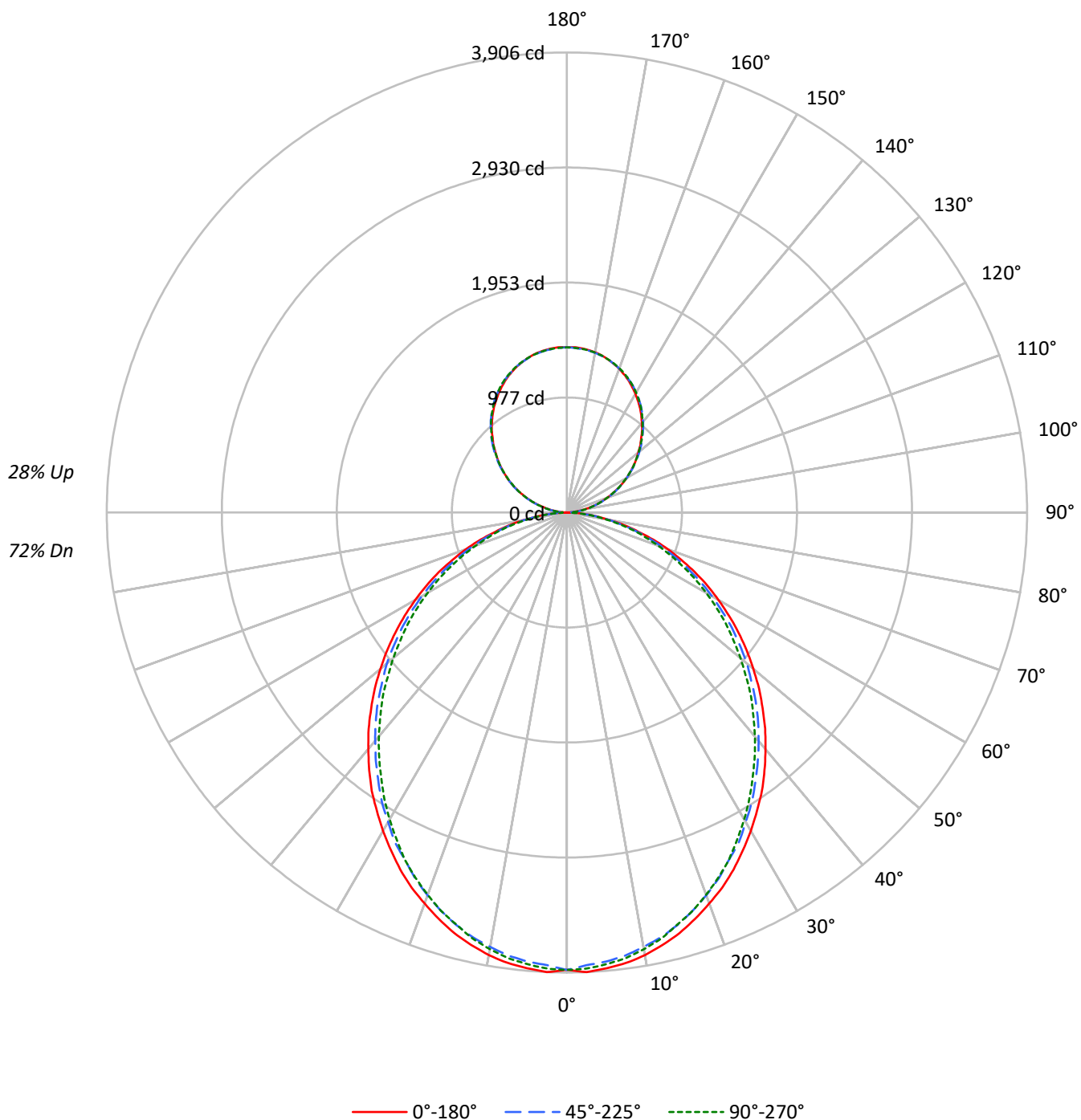
Lumens per Lamp: N/A
Luminaire Lumens: 13807.0 lumens
Efficiency: N/A
Efficacy: 111.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 124.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76
1	103	98	94	91	97	93	90	86	84	81	79	75	73	71	67	66	64
2	93	86	79	74	88	81	76	71	73	69	65	66	63	59	59	56	54
3	85	75	68	62	81	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	51	58	52	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	44	52	45	41	47	42	38	42	38	35
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	31
7	61	49	40	35	58	47	39	34	42	36	31	39	33	29	35	31	27
8	57	44	36	31	54	42	35	30	39	33	28	35	30	26	32	28	24
9	53	41	33	28	50	39	32	27	36	30	25	33	27	24	30	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4839	4839	4839
5°	4844	4768	4801
10°	4803	4700	4733
15°	4729	4618	4628
20°	4631	4507	4521
25°	4534	4374	4398
30°	4412	4250	4241
35°	4296	4105	4077
40°	4154	3958	3920
45°	4013	3811	3759
50°	3858	3656	3573
55°	3695	3476	3401
60°	3511	3264	3204
65°	3310	3044	2971
70°	3054	2775	2721
75°	2701	2452	2484
80°	2273	2040	2042
85°	1605	1344	1319

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4013 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.6
10°-20°	1028.5	7.4
20°-30°	1511.4	10.9
30°-40°	1755.4	12.7
40°-50°	1753.3	12.7
50°-60°	1528.8	11.1
60°-70°	1130.1	8.2
70°-80°	639.4	4.6
80°-90°	172.7	1.3
90°-100°	86.8	0.6
100°-110°	275.8	2.0
110°-120°	472.0	3.4
120°-130°	620.8	4.5
130°-140°	696.8	5.0
140°-150°	683.3	4.9
150°-160°	573.2	4.2
160°-170°	380.1	2.8
170°-180°	132.9	1.0
0°-30°	2905.4	21.0
0°-40°	4660.9	33.8
0°-60°	7942.9	57.5
0°-90°	9885.2	71.6
90°-120°	834.7	6.0
90°-150°	2835.6	20.5
90°-180°	3922.0	28.4
0°-180°	13807.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	1	15	42	39	40	13
95°	62	74	76	76	74	69
105°	255	258	260	263	263	269
115°	474	480	478	477	474	469
125°	689	700	696	692	691	616
135°	891	904	907	906	902	689
145°	1082	1090	1097	1098	1094	676
155°	1237	1240	1244	1250	1246	569
165°	1346	1345	1345	1353	1347	380
175°	1400	1397	1394	1403	1396	133
180°	1403	1403	1403	1403	1403	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	1.2	15.2	41.5	38.9	40.1
92.5°	26.2	35.5	36.8	38.0	38.0
95°	61.8	73.6	75.7	75.7	73.6
97.5°	102.8	113.8	118.4	118.4	118.4
100°	150.2	159.9	163.2	163.2	162.0
102.5°	200.1	207.3	211.9	213.1	211.9
105°	254.6	258.0	260.5	262.6	262.6
107.5°	308.7	313.8	313.8	314.6	308.7
110°	361.2	368.0	368.0	368.0	364.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	417.9	425.1	423.7	420.4	417.9
115°	473.7	480.5	478.3	477.1	473.7
117.5°	529.1	538.4	532.5	529.1	525.8
120°	585.0	594.2	585.0	585.0	581.1
122.5°	635.7	647.5	641.7	638.2	635.7
125°	689.0	699.6	696.2	692.3	691.1
127.5°	741.0	754.1	749.5	744.4	741.0
130°	789.6	804.9	802.8	800.3	795.6
132.5°	844.2	856.0	856.9	850.9	847.6
135°	891.2	904.3	906.8	905.5	902.2
137.5°	943.6	954.2	956.3	955.4	950.4
140°	989.7	1000.3	1006.2	1006.2	1001.5
142.5°	1037.1	1047.7	1051.0	1052.3	1047.7
145°	1081.9	1090.4	1097.1	1098.5	1093.8
147.5°	1122.1	1132.6	1137.7	1139.8	1135.2
150°	1163.6	1170.8	1175.4	1179.2	1175.4
152.5°	1200.4	1207.5	1213.5	1218.1	1213.5
155°	1237.1	1240.5	1244.3	1250.3	1246.4
157.5°	1268.9	1271.4	1273.5	1282.0	1276.0
160°	1297.2	1299.7	1301.0	1308.2	1303.1
162.5°	1323.4	1323.4	1324.7	1332.7	1326.8
165°	1345.9	1344.6	1344.6	1353.0	1347.1
167.5°	1366.2	1362.3	1362.3	1370.8	1364.8
170°	1381.4	1377.9	1376.7	1385.1	1377.9
172.5°	1391.9	1388.6	1387.2	1395.8	1388.6
175°	1400.4	1397.0	1394.5	1402.9	1395.8
177.5°	1405.1	1401.7	1399.1	1406.3	1399.1
180°	1402.9	1402.9	1402.9	1402.9	1402.9

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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	14.49	15.58	15.24	16.35	17.28	14.06	15.16	14.81	15.92	16.85
	3H	16.16	17.14	16.92	17.92	18.88	15.69	16.67	16.45	17.45	18.41
	4H	16.75	17.68	17.53	18.47	19.43	16.28	17.21	17.06	18.00	18.97
	6H	17.15	18.01	17.94	18.81	19.79	16.68	17.54	17.48	18.34	19.32
	8H	17.26	18.08	18.06	18.89	19.88	16.79	17.61	17.59	18.43	19.41
	12H	17.31	18.09	18.12	18.90	19.91	16.84	17.62	17.65	18.43	19.44
4H	2H	14.97	15.90	15.76	16.69	17.66	14.63	15.56	15.41	16.35	17.32
	3H	16.85	17.63	17.64	18.45	19.43	16.46	17.24	17.26	18.06	19.04
	4H	17.57	18.27	18.38	19.09	20.11	17.17	17.87	17.97	18.69	19.71
	6H	18.09	18.70	18.91	19.54	20.56	17.68	18.29	18.51	19.14	20.16
	8H	18.24	18.81	19.07	19.65	20.68	17.83	18.40	18.66	19.24	20.27
	12H	18.32	18.83	19.17	19.69	20.73	17.90	18.42	18.75	19.28	20.31
8H	4H	17.78	18.35	18.61	19.19	20.22	17.42	17.99	18.25	18.83	19.87
	6H	18.41	18.88	19.27	19.77	20.80	18.05	18.52	18.91	19.41	20.44
	8H	18.62	19.05	19.49	19.92	20.97	18.26	18.68	19.13	19.56	20.61
	12H	18.76	19.13	19.63	20.00	21.10	18.38	18.75	19.25	19.62	20.73
12H	4H	17.77	18.29	18.62	19.15	20.19	17.43	17.94	18.27	18.80	19.84
	6H	18.44	18.86	19.31	19.74	20.79	18.09	18.51	18.96	19.39	20.44
	8H	18.68	19.06	19.56	19.93	21.03	18.33	18.70	19.20	19.57	20.68