

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: P912870

Luminaire Tested: DFN2DIP-TR4F0-080D040US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912870
REPORT IS A COMBINATION OF REPORTS P900377 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D040US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

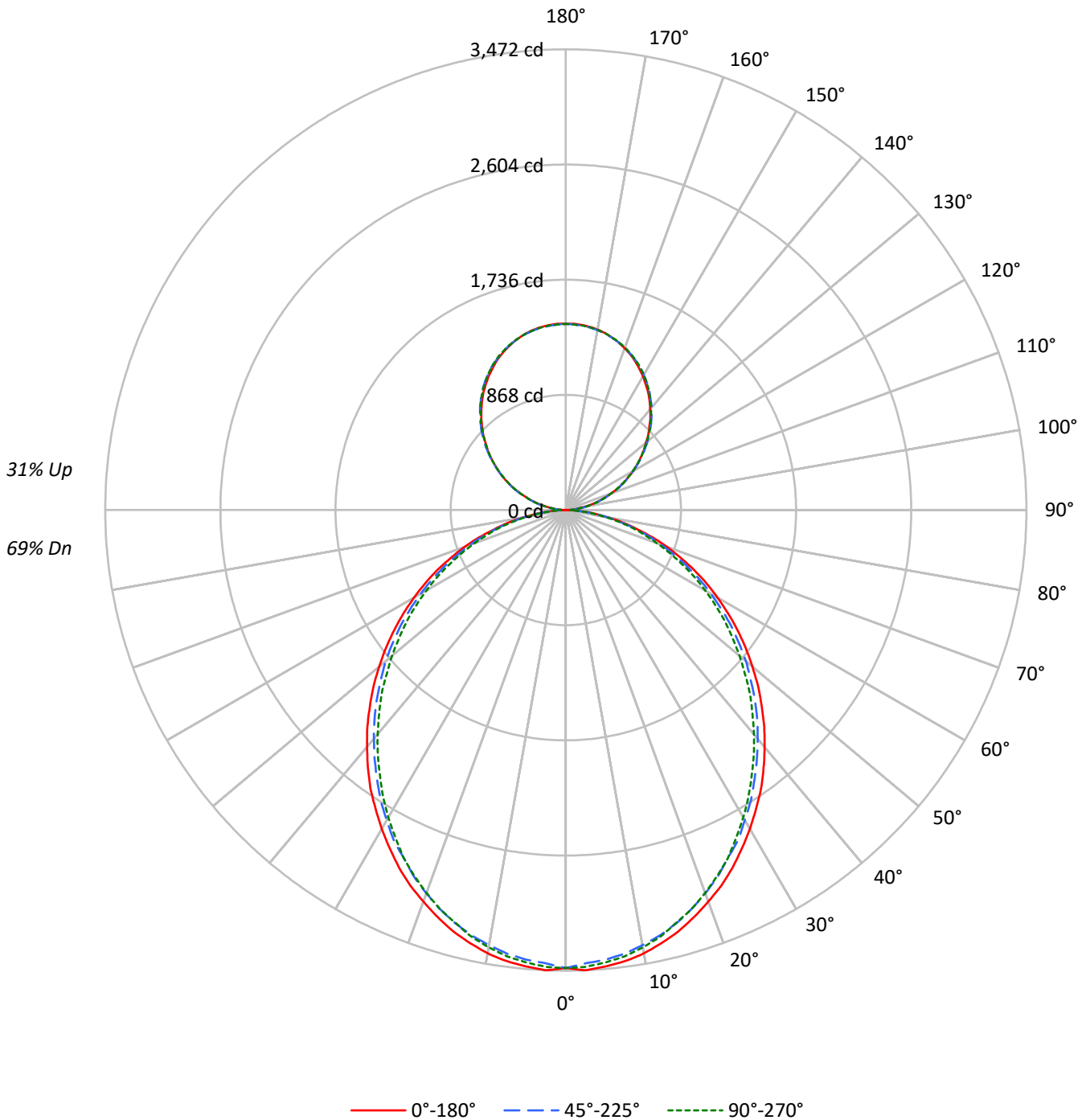
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12709.1 lumens
Efficiency: N/A
Efficacy: 120.6 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-Direct

Input Watts (W): 105.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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			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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			69
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			58
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			49
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			41
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			35
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			31
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			24
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			22
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			19
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2742	2742	2742
5°	2747	2704	2722
10°	2725	2668	2686
15°	2685	2624	2628
20°	2630	2563	2569
25°	2577	2490	2501
30°	2509	2422	2414
35°	2445	2342	2322
40°	2367	2261	2235
45°	2288	2180	2145
50°	2202	2095	2042
55°	2112	1996	1947
60°	2011	1879	1838
65°	1900	1758	1709
70°	1759	1611	1571
75°	1564	1434	1443
80°	1329	1209	1198
85°	962	820	794

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2288 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	2.6
10°-20°	914.2	7.2
20°-30°	1343.5	10.6
30°-40°	1560.4	12.3
40°-50°	1558.4	12.3
50°-60°	1358.9	10.7
60°-70°	1004.5	7.9
70°-80°	568.4	4.5
80°-90°	154.0	1.2
90°-100°	86.8	0.7
100°-110°	275.8	2.2
110°-120°	472.0	3.7
120°-130°	620.8	4.9
130°-140°	696.8	5.5
140°-150°	683.3	5.4
150°-160°	573.2	4.5
160°-170°	380.1	3.0
170°-180°	132.9	1.0
0°-30°	2582.6	20.3
0°-40°	4143.0	32.6
0°-60°	7060.4	55.6
0°-90°	8787.3	69.1
90°-120°	834.7	6.6
90°-150°	2835.6	22.3
90°-180°	3922.0	30.9
0°-180°	12709.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	1	15	42	39	40	12
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°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
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	12.38	13.44	13.15	14.24	15.20	11.94	13.01	12.72	13.80	14.77
	3H	14.05	15.01	14.84	15.81	16.81	13.58	14.53	14.36	15.34	16.34
	4H	14.65	15.55	15.45	16.36	17.37	14.17	15.08	14.98	15.89	16.90
	6H	15.06	15.89	15.87	16.71	17.74	14.58	15.41	15.40	16.24	17.26
	8H	15.17	15.96	15.99	16.80	17.83	14.69	15.49	15.52	16.33	17.35
	12H	15.22	15.98	16.05	16.81	17.86	14.74	15.50	15.57	16.33	17.38
4H	2H	12.86	13.76	13.67	14.58	15.59	12.52	13.42	13.32	14.23	15.24
	3H	14.74	15.50	15.56	16.35	17.37	14.35	15.11	15.17	15.95	16.98
	4H	15.47	16.15	16.30	17.00	18.05	15.06	15.75	15.90	16.59	17.65
	6H	15.99	16.59	16.84	17.46	18.52	15.58	16.18	16.43	17.05	18.11
	8H	16.15	16.70	17.00	17.57	18.64	15.74	16.29	16.59	17.16	18.23
	12H	16.23	16.73	17.10	17.62	18.69	15.81	16.31	16.68	17.19	18.27
8H	4H	15.68	16.23	16.53	17.10	18.17	15.32	15.87	16.17	16.74	17.81
	6H	16.32	16.78	17.20	17.69	18.76	15.96	16.42	16.84	17.32	18.40
	8H	16.54	16.95	17.43	17.85	18.94	16.17	16.58	17.07	17.48	18.57
	12H	16.68	17.04	17.58	17.94	19.08	16.30	16.66	17.19	17.55	18.69
12H	4H	15.68	16.18	16.55	17.06	18.14	15.32	15.82	16.20	16.71	17.79
	6H	16.35	16.76	17.24	17.66	18.75	16.00	16.41	16.89	17.31	18.40
	8H	16.60	16.96	17.50	17.86	19.00	16.25	16.61	17.14	17.50	18.64