

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: P910332

Luminaire Tested: DFN2DIP-4P2F0-020D040US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910332
REPORT IS A COMBINATION OF REPORTS P899024 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US850-RLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

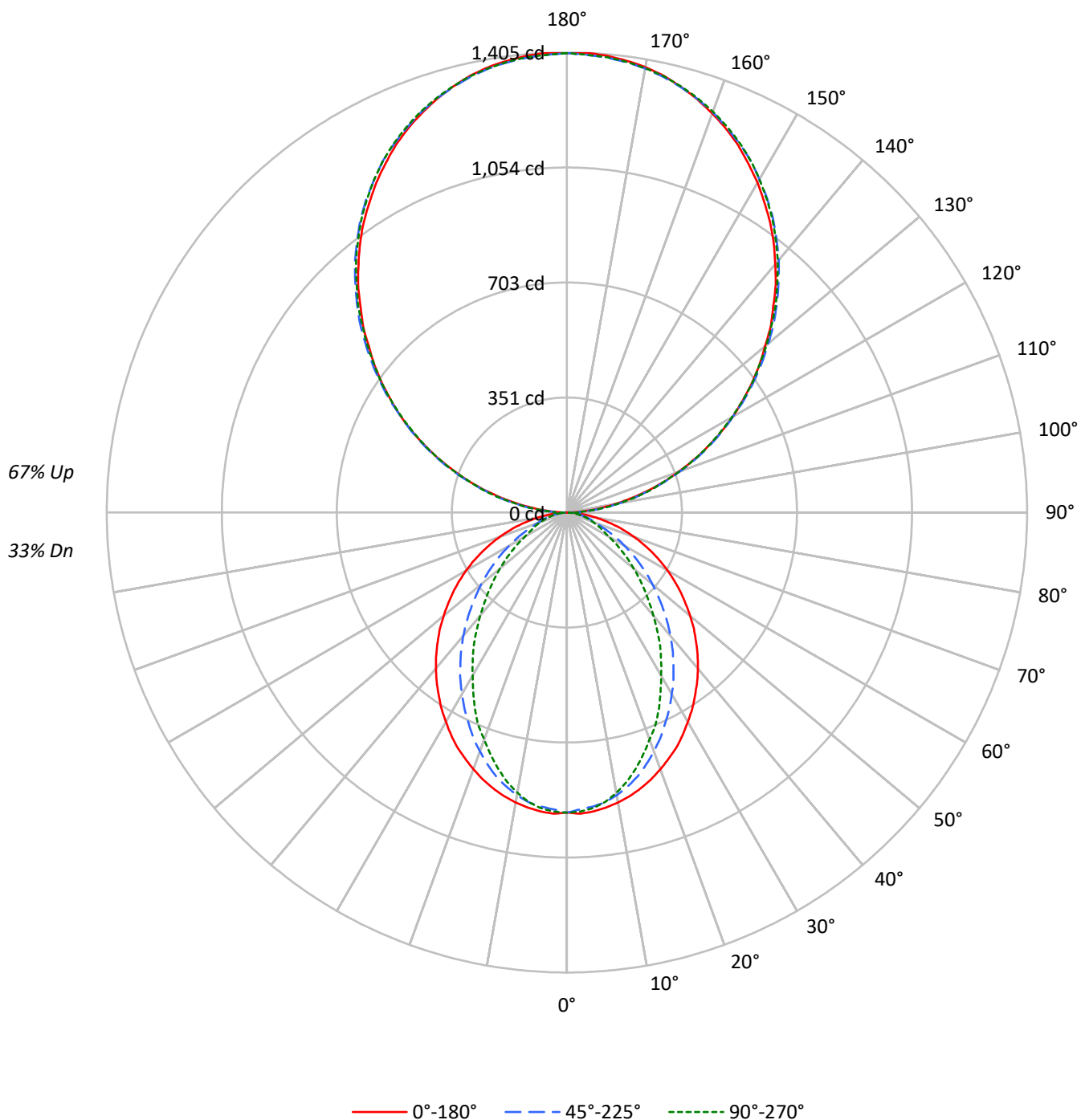
Lumens per Lamp: N/A
Luminaire Lumens: 5811.1 lumens
Efficiency: N/A
Efficacy: 117.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2295	2295	2295
5°	2294	2253	2269
10°	2267	2203	2192
15°	2231	2124	2075
20°	2185	2019	1931
25°	2139	1901	1793
30°	2077	1781	1619
35°	2016	1653	1467
40°	1954	1521	1292
45°	1883	1375	1135
50°	1809	1229	981
55°	1731	1072	834
60°	1641	911	683
65°	1537	746	611
70°	1410	593	547
75°	1251	511	490
80°	1024	414	413
85°	659	253	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2082 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	85.9	1.5
10°-20°	235.8	4.1
20°-30°	331.1	5.7
30°-40°	361.0	6.2
40°-50°	331.8	5.7
50°-60°	260.6	4.5
60°-70°	169.6	2.9
70°-80°	87.3	1.5
80°-90°	26.3	0.5
90°-100°	86.8	1.5
100°-110°	275.8	4.7
110°-120°	472.0	8.1
120°-130°	620.8	10.7
130°-140°	696.8	12.0
140°-150°	683.3	11.8
150°-160°	573.2	9.9
160°-170°	380.1	6.5
170°-180°	132.9	2.3
0°-30°	652.9	11.2
0°-40°	1013.8	17.4
0°-60°	1606.2	27.6
0°-90°	1889.3	32.5
90°-120°	834.7	14.4
90°-150°	2835.6	48.8
90°-180°	3922.0	67.5
0°-180°	5811.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	917	917	917	917	917	
5°	917	913	902	909	907	87
15°	872	863	834	819	811	246
25°	792	765	710	676	664	364
35°	682	640	567	514	496	427
45°	558	502	415	356	336	431
55°	424	359	270	220	204	379
65°	286	219	144	116	114	284
75°	153	94	66	61	60	161
85°	36	18	16	16	16	41
90°	1	15	42	39	40	6
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°	916.7	916.7	916.7	916.7	916.7
2.5°	920.8	916.7	907.5	915.9	914.3
5°	916.7	912.6	901.7	909.3	906.7
7.5°	909.3	904.3	892.6	896.0	891.7
10°	899.3	893.4	876.9	874.3	869.5
12.5°	886.9	879.3	856.9	852.0	842.8
15°	871.9	862.7	834.5	818.8	810.6
17.5°	854.5	841.2	806.4	788.1	774.9
20°	834.5	817.9	776.5	755.8	737.5
22.5°	813.0	793.9	745.8	717.6	705.2
25°	791.5	764.9	710.1	676.2	663.6
27.5°	765.8	737.5	676.9	637.9	618.8
30°	738.4	706.8	640.4	598.2	575.7
32.5°	711.8	673.6	605.6	555.8	535.1
35°	681.9	639.7	566.7	514.4	496.1
37.5°	652.9	607.2	530.1	472.9	452.1
40°	622.1	572.5	492.0	433.1	411.4
42.5°	590.7	537.6	453.8	392.4	371.7
45°	557.5	501.8	414.9	355.9	335.9
47.5°	526.0	467.1	377.5	318.5	300.3
50°	491.2	432.3	341.0	283.7	266.4
52.5°	457.0	394.8	306.1	251.4	235.7
55°	423.9	359.2	269.6	219.9	204.1
57.5°	389.9	323.5	237.3	190.9	177.6
60°	355.1	288.7	203.3	161.0	147.7
62.5°	321.1	254.7	174.2	134.4	127.8
65°	286.2	219.0	144.4	116.2	113.7
67.5°	253.1	185.8	116.2	102.0	99.6
70°	218.1	153.5	96.2	87.9	84.6
72.5°	185.0	123.5	80.4	73.9	72.2
75°	152.6	94.5	66.3	60.6	59.8
77.5°	120.3	67.2	52.2	48.9	47.2
80°	90.4	48.1	39.8	36.5	36.5
82.5°	63.0	32.4	27.4	25.7	25.7
85°	35.6	18.2	15.7	15.7	15.7
87.5°	13.3	6.7	6.7	5.8	5.8
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	8.00	8.70	9.10	9.80	11.30	3.96	4.67	5.06	5.76	7.26
	3H	9.64	10.27	10.75	11.37	12.89	5.12	5.75	6.23	6.85	8.37
	4H	10.23	10.83	11.35	11.93	13.46	5.55	6.15	6.67	7.25	8.78
	6H	10.63	11.18	11.75	12.28	13.82	5.84	6.39	6.97	7.50	9.04
	8H	10.74	11.26	11.87	12.38	13.91	5.92	6.44	7.05	7.56	9.10
	12H	10.79	11.28	11.92	12.40	13.95	5.95	6.45	7.08	7.56	9.11
4H	2H	7.99	8.59	9.12	9.70	11.22	4.53	5.13	5.65	6.23	7.76
	3H	9.79	10.28	10.92	11.41	12.95	5.84	6.34	6.97	7.47	9.01
	4H	10.46	10.91	11.59	12.03	13.59	6.37	6.83	7.50	7.94	9.50
	6H	10.94	11.33	12.08	12.47	14.02	6.76	7.15	7.90	8.29	9.84
	8H	11.10	11.47	12.24	12.60	14.17	6.87	7.24	8.01	8.37	9.94
	12H	11.18	11.51	12.33	12.65	14.22	6.92	7.25	8.07	8.39	9.96
8H	4H	10.41	10.77	11.55	11.91	13.47	6.62	6.99	7.76	8.12	9.69
	6H	10.94	11.25	12.11	12.42	13.98	7.11	7.41	8.27	8.59	10.15
	8H	11.15	11.41	12.31	12.56	14.15	7.28	7.55	8.45	8.70	10.28
	12H	11.26	11.49	12.43	12.64	14.26	7.38	7.61	8.55	8.76	10.38
12H	4H	10.35	10.68	11.51	11.83	13.40	6.62	6.95	7.78	8.10	9.67
	6H	10.92	11.18	12.08	12.34	13.92	7.15	7.41	8.32	8.57	10.15
	8H	11.12	11.35	12.29	12.50	14.12	7.34	7.57	8.51	8.72	10.34