

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: P915827

Luminaire Tested: DFN2DIP-4P3F0-020D050US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915827
REPORT IS A COMBINATION OF REPORTS P900579 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D050US930-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

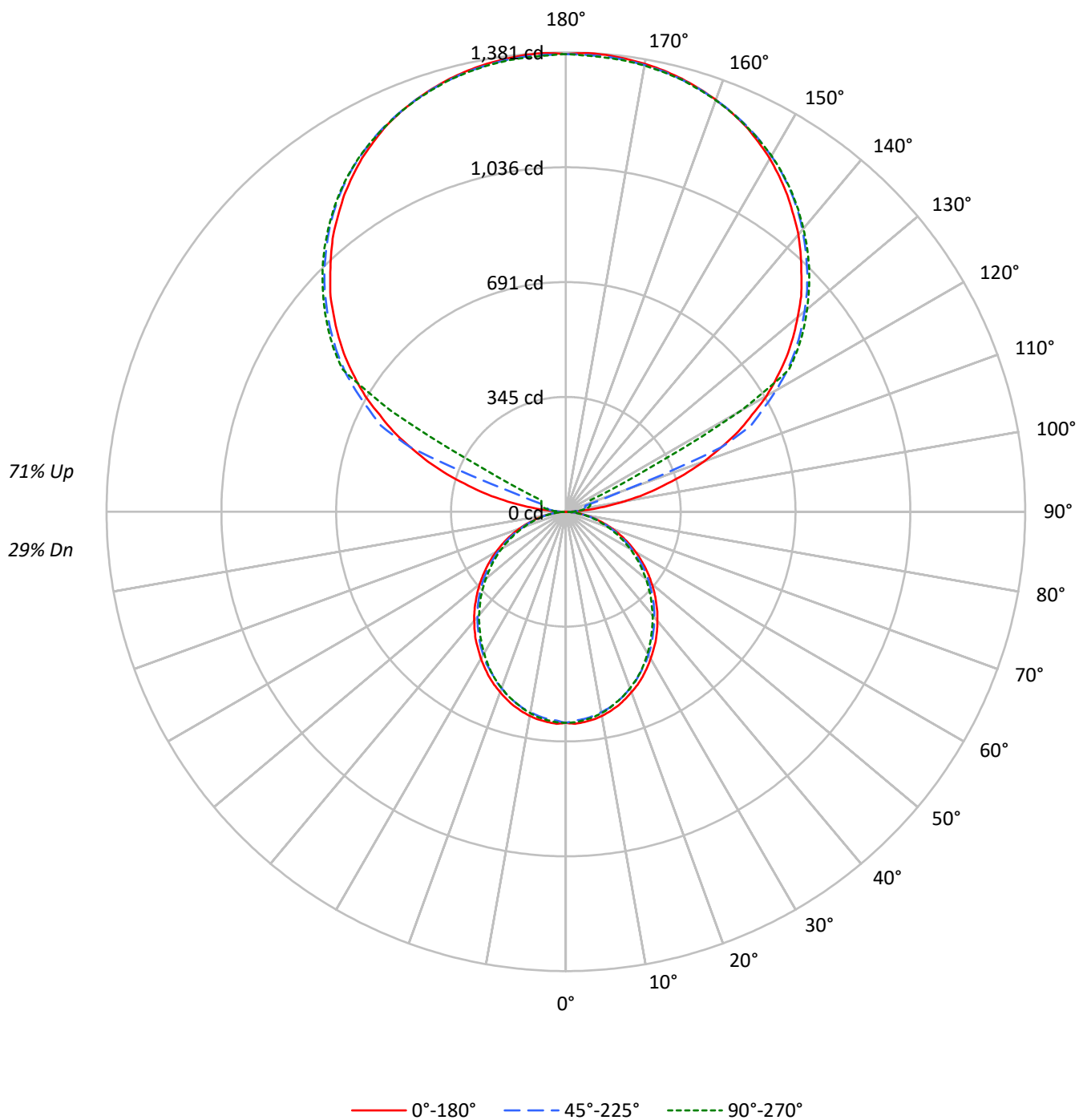
Lumens per Lamp: N/A
Luminaire Lumens: 5650.1 lumens
Efficiency: N/A
Efficacy: 105.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 53.8
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	36	36	29
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31	31	31	24
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26	26	26	20
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22	22	22	17
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19	19	19	15
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16	16	16	13
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14	14	14	11
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13	13	13	10
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11	11	11	9
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	10	10	8
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	9	9	7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	723	723	723
5°	724	712	718
10°	717	702	708
15°	706	690	692
20°	692	674	676
25°	677	654	658
30°	659	636	635
35°	642	614	611
40°	620	592	587
45°	599	571	564
50°	576	548	536
55°	551	521	511
60°	524	490	482
65°	494	457	448
70°	455	417	411
75°	402	369	376
80°	339	308	311
85°	237	204	204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 939 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.7	1.1
10°-20°	168.0	3.0
20°-30°	246.9	4.4
30°-40°	286.8	5.1
40°-50°	286.4	5.1
50°-60°	249.7	4.4
60°-70°	184.6	3.3
70°-80°	104.5	1.8
80°-90°	30.0	0.5
90°-100°	45.4	0.8
100°-110°	169.1	3.0
110°-120°	448.5	7.9
120°-130°	743.9	13.2
130°-140°	790.2	14.0
140°-150°	734.4	13.0
150°-160°	590.4	10.5
160°-170°	380.5	6.7
170°-180°	130.9	2.3
0°-30°	474.7	8.4
0°-40°	761.5	13.5
0°-60°	1297.6	23.0
0°-90°	1616.7	28.6
90°-120°	663.0	11.7
90°-150°	2931.5	51.9
90°-180°	4033.0	71.4
0°-180°	5650.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	634	634	634	634	634	
5°	634	632	625	630	629	60
15°	604	600	592	595	592	170
25°	547	542	531	533	531	252
35°	472	466	456	452	449	295
45°	384	380	370	364	361	296
55°	290	287	279	272	269	260
65°	196	192	186	181	178	194
75°	102	101	98	95	96	109
85°	25	24	24	22	21	28
90°	1	12	20	25	27	5
95°	65	32	39	44	43	77
105°	303	333	61	72	76	323
115°	572	589	614	153	82	564
125°	809	822	841	848	851	722
135°	1002	1018	1026	1036	1034	774
145°	1162	1161	1178	1185	1180	727
155°	1279	1270	1282	1288	1280	589
165°	1348	1342	1345	1352	1345	381
175°	1379	1372	1374	1381	1371	131
180°	1376	1376	1376	1376	1376	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	634.5	634.5	634.5	634.5	634.5
2.5°	638.1	635.1	628.4	634.5	633.3
5°	634.5	632.1	625.3	630.2	629.0
7.5°	630.2	626.6	619.9	624.8	623.5
10°	623.5	619.3	612.0	616.8	615.0
12.5°	614.3	610.7	603.4	606.4	605.2
15°	604.0	600.4	592.4	594.8	591.8
17.5°	591.2	587.6	579.6	582.6	579.6
20°	577.1	573.5	564.9	566.8	564.3
22.5°	563.1	557.7	549.7	549.7	548.5
25°	546.7	541.8	531.4	532.6	531.4
27.5°	528.3	524.1	516.2	514.4	511.3
30°	510.1	505.2	496.0	494.2	491.7
32.5°	490.5	486.9	477.1	473.4	471.0
35°	471.7	465.5	455.8	452.1	449.0
37.5°	450.3	444.7	435.0	430.7	427.6
40°	428.3	423.4	413.6	408.2	405.7
42.5°	406.9	402.0	392.3	386.2	382.5
45°	383.8	379.5	370.3	363.6	361.2
47.5°	361.2	356.9	347.2	340.4	336.8
50°	337.4	334.4	325.8	317.2	314.2
52.5°	314.2	309.9	302.0	295.3	291.1
55°	290.4	286.7	279.4	272.1	269.0
57.5°	266.6	263.6	255.6	248.3	245.8
60°	242.8	240.4	231.9	225.1	223.3
62.5°	219.6	215.3	209.3	203.2	200.7
65°	195.8	192.2	186.1	180.6	177.6
67.5°	171.5	168.4	162.9	158.7	156.2
70°	148.9	146.4	140.9	136.6	134.3
72.5°	125.7	123.3	120.2	115.9	114.1
75°	102.5	101.3	98.2	94.6	95.8
77.5°	81.8	79.3	78.0	76.2	74.4
80°	61.1	60.4	59.2	57.3	56.1
82.5°	41.5	41.5	40.9	38.5	38.5
85°	24.9	24.4	23.8	21.9	21.4
87.5°	11.0	9.8	8.6	6.8	6.1
90°	1.0	11.9	19.9	24.9	26.8
92.5°	24.9	21.0	23.9	25.9	26.8
95°	64.7	31.8	38.8	43.9	42.8
97.5°	116.4	34.9	50.7	53.8	54.7
100°	176.3	39.9	56.7	64.7	66.7
102.5°	241.9	239.9	58.8	69.6	72.7
105°	302.6	332.6	60.7	71.7	75.7
107.5°	373.3	398.1	62.8	73.6	77.7
110°	441.1	461.9	174.2	74.7	78.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.8	522.6	505.7	76.6	79.7
115°	572.4	589.3	614.2	153.4	81.7
117.5°	631.1	651.0	668.1	525.5	264.8
120°	696.8	711.8	729.7	741.7	607.2
122.5°	752.5	768.5	788.5	794.4	795.5
125°	809.3	822.3	841.2	848.2	851.2
127.5°	861.0	875.0	890.1	899.9	900.9
130°	909.9	925.9	936.7	947.7	946.8
132.5°	959.7	972.7	983.5	992.5	991.6
135°	1001.5	1017.5	1026.3	1036.4	1034.4
137.5°	1045.2	1057.2	1067.2	1077.2	1074.2
140°	1088.0	1096.1	1106.9	1115.9	1111.0
142.5°	1124.0	1131.0	1143.9	1151.8	1146.8
145°	1161.8	1160.7	1177.6	1184.6	1179.7
147.5°	1194.6	1191.6	1208.5	1213.5	1209.6
150°	1226.5	1219.5	1235.4	1241.4	1236.4
152.5°	1253.3	1245.4	1260.3	1266.3	1259.3
155°	1279.2	1270.3	1282.2	1288.2	1280.3
157.5°	1300.1	1292.2	1301.1	1308.1	1300.1
160°	1318.1	1312.1	1318.1	1324.0	1317.0
162.5°	1333.9	1328.0	1332.9	1339.9	1331.0
165°	1347.9	1342.0	1344.9	1351.8	1344.9
167.5°	1358.9	1352.8	1355.9	1362.9	1353.9
170°	1367.8	1361.8	1363.8	1370.8	1361.8
172.5°	1373.8	1367.8	1369.9	1376.8	1367.8
175°	1378.8	1371.7	1373.8	1380.7	1370.8
177.5°	1380.7	1373.8	1374.8	1381.8	1372.8
180°	1375.7	1375.7	1375.7	1375.7	1375.7

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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	3.71	4.40	4.83	5.52	7.06	3.26	3.96	4.38	5.07	6.62
	3H	5.35	5.97	6.48	7.10	8.66	4.86	5.48	5.99	6.61	8.17
	4H	5.93	6.52	7.07	7.64	9.21	5.43	6.02	6.57	7.15	8.72
	6H	6.31	6.86	7.46	7.99	9.57	5.81	6.36	6.96	7.48	9.06
	8H	6.41	6.93	7.56	8.07	9.65	5.91	6.43	7.06	7.57	9.14
	12H	6.45	6.95	7.61	8.08	9.68	5.94	6.44	7.10	7.57	9.17
4H	2H	4.14	4.74	5.29	5.86	7.43	3.79	4.38	4.93	5.50	7.07
	3H	5.99	6.48	7.14	7.63	9.21	5.58	6.07	6.73	7.22	8.80
	4H	6.69	7.15	7.85	8.29	9.89	6.27	6.72	7.42	7.86	9.46
	6H	7.19	7.58	8.35	8.74	10.34	6.76	7.15	7.92	8.31	9.90
	8H	7.34	7.70	8.50	8.85	10.46	6.90	7.26	8.06	8.42	10.02
	12H	7.40	7.73	8.58	8.89	10.51	6.95	7.28	8.13	8.44	10.06
8H	4H	6.87	7.23	8.03	8.39	9.99	6.49	6.86	7.65	8.01	9.62
	6H	7.49	7.79	8.67	8.99	10.59	7.10	7.40	8.28	8.60	10.20
	8H	7.71	7.97	8.89	9.14	10.77	7.31	7.57	8.50	8.75	10.37
	12H	7.83	8.06	9.01	9.23	10.88	7.41	7.64	8.60	8.82	10.47
12H	4H	6.85	7.18	8.02	8.34	9.95	6.48	6.81	7.65	7.97	9.58
	6H	7.52	7.78	8.70	8.95	10.58	7.14	7.40	8.33	8.58	10.20
	8H	7.75	7.98	8.94	9.15	10.80	7.36	7.59	8.55	8.77	10.42