

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: P921312

Luminaire Tested: DFN2DIP-4P3F0-040D020US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921312
REPORT IS A COMBINATION OF REPORTS P899034 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D020US940-RLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

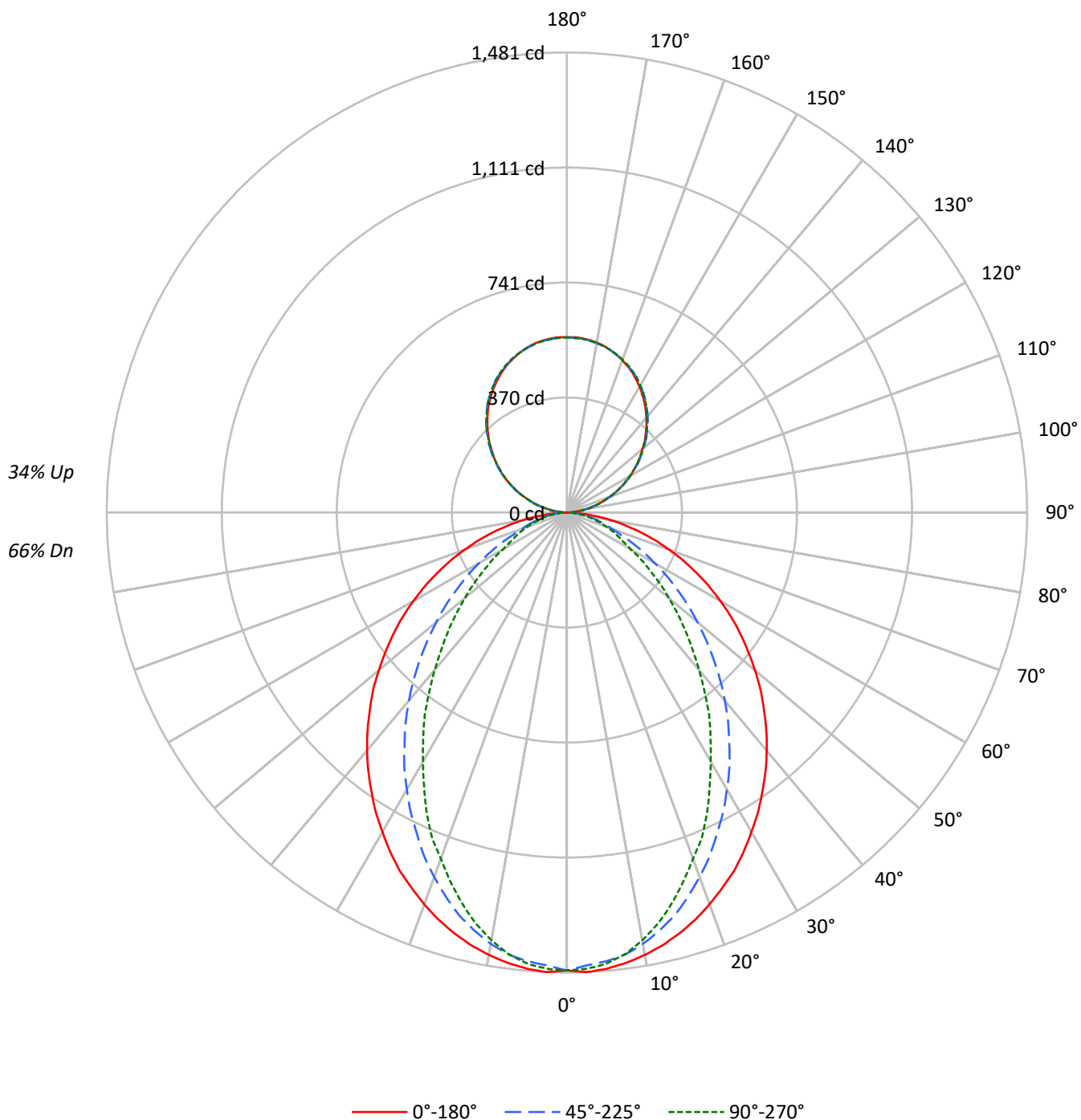
Lumens per Lamp: N/A
Luminaire Lumens: 4610.1 lumens
Efficiency: N/A
Efficacy: 87.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 53
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1680	1680	1680
5°	1682	1652	1663
10°	1664	1619	1609
15°	1640	1564	1525
20°	1609	1489	1421
25°	1576	1406	1322
30°	1534	1320	1196
35°	1492	1228	1085
40°	1449	1133	958
45°	1399	1028	843
50°	1348	922	731
55°	1294	808	623
60°	1232	690	513
65°	1160	570	461
70°	1073	458	416
75°	964	401	377
80°	805	333	326
85°	546	217	241

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1399 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	3.0
10°-20°	379.3	8.2
20°-30°	532.5	11.6
30°-40°	580.5	12.6
40°-50°	533.5	11.6
50°-60°	419.0	9.1
60°-70°	272.7	5.9
70°-80°	140.4	3.0
80°-90°	37.4	0.8
90°-100°	34.9	0.8
100°-110°	110.9	2.4
110°-120°	189.8	4.1
120°-130°	249.6	5.4
130°-140°	280.2	6.1
140°-150°	274.7	6.0
150°-160°	230.4	5.0
160°-170°	152.8	3.3
170°-180°	53.4	1.2
0°-30°	1049.9	22.8
0°-40°	1630.4	35.4
0°-60°	2582.9	56.0
0°-90°	3033.4	65.8
90°-120°	335.6	7.3
90°-150°	1140.0	24.7
90°-180°	1577.0	34.2
0°-180°	4610.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	0	6	17	16	16	5
95°	25	30	30	30	30	28
105°	102	104	105	106	106	108
115°	190	193	192	192	190	188
125°	277	281	280	278	278	248
135°	358	364	364	364	363	277
145°	435	438	441	442	440	272
155°	497	499	500	503	501	229
165°	541	541	541	544	542	153
175°	563	562	561	564	561	53
180°	564	564	564	564	564	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	0.5	6.2	16.7	15.6	16.1
92.5°	10.5	14.3	14.8	15.3	15.3
95°	24.8	29.6	30.4	30.4	29.6
97.5°	41.3	45.7	47.6	47.6	47.6
100°	60.4	64.3	65.6	65.6	65.1
102.5°	80.4	83.3	85.2	85.7	85.2
105°	102.4	103.7	104.8	105.6	105.6
107.5°	124.1	126.2	126.2	126.5	124.1
110°	145.3	147.9	147.9	147.9	146.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	168.0	170.9	170.4	169.0	168.0
115°	190.5	193.1	192.3	191.8	190.5
117.5°	212.8	216.5	214.1	212.8	211.3
120°	235.1	238.9	235.1	235.1	233.6
122.5°	255.6	260.3	258.0	256.6	255.6
125°	277.0	281.2	279.9	278.4	277.9
127.5°	297.9	303.2	301.3	299.3	297.9
130°	317.4	323.6	322.7	321.7	319.9
132.5°	339.4	344.2	344.5	342.1	340.7
135°	358.3	363.6	364.5	364.1	362.7
137.5°	379.3	383.6	384.5	384.1	382.1
140°	397.9	402.2	404.6	404.6	402.7
142.5°	417.0	421.2	422.6	423.0	421.2
145°	435.0	438.4	441.1	441.6	439.7
147.5°	451.1	455.4	457.4	458.2	456.4
150°	467.8	470.6	472.5	474.0	472.5
152.5°	482.6	485.4	487.9	489.7	487.9
155°	497.4	498.7	500.2	502.7	501.1
157.5°	510.1	511.1	512.0	515.4	513.0
160°	521.6	522.5	523.1	525.9	523.9
162.5°	532.1	532.1	532.5	535.8	533.4
165°	541.1	540.6	540.6	543.9	541.6
167.5°	549.2	547.7	547.7	551.1	548.8
170°	555.4	554.0	553.5	556.9	554.0
172.5°	559.6	558.2	557.8	561.2	558.2
175°	563.0	561.7	560.6	564.0	561.2
177.5°	564.9	563.6	562.5	565.3	562.5
180°	564.0	564.0	564.0	564.0	564.0

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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	10.28	11.25	11.09	12.09	13.12	6.24	7.21	7.05	8.05	9.08
	3H	11.96	12.84	12.79	13.68	14.74	7.43	8.31	8.26	9.15	10.21
	4H	12.57	13.40	13.42	14.25	15.32	7.88	8.71	8.73	9.56	10.63
	6H	13.00	13.76	13.86	14.62	15.70	8.21	8.97	9.06	9.82	10.91
	8H	13.13	13.85	13.99	14.73	15.81	8.30	9.02	9.16	9.90	10.98
	12H	13.19	13.88	14.06	14.75	15.86	8.34	9.03	9.21	9.90	11.01
4H	2H	10.31	11.14	11.16	11.99	13.05	6.85	7.67	7.70	8.52	9.59
	3H	12.15	12.83	13.01	13.72	14.80	8.20	8.89	9.07	9.77	10.86
	4H	12.84	13.47	13.72	14.35	15.46	8.75	9.38	9.63	10.26	11.37
	6H	13.36	13.90	14.25	14.80	15.92	9.17	9.71	10.06	10.61	11.73
	8H	13.54	14.04	14.43	14.94	16.06	9.30	9.80	10.19	10.70	11.83
	12H	13.64	14.09	14.55	15.00	16.14	9.37	9.82	10.28	10.74	11.87
8H	4H	12.82	13.32	13.71	14.22	15.35	9.04	9.54	9.93	10.44	11.57
	6H	13.39	13.80	14.30	14.74	15.87	9.56	9.97	10.48	10.91	12.04
	8H	13.60	13.97	14.53	14.90	16.04	9.74	10.11	10.67	11.04	12.19
	12H	13.74	14.06	14.67	14.99	16.18	9.86	10.19	10.79	11.11	12.31
12H	4H	12.78	13.23	13.69	14.15	15.28	9.05	9.50	9.96	10.42	11.55
	6H	13.36	13.73	14.29	14.66	15.80	9.60	9.97	10.53	10.91	12.05
	8H	13.58	13.91	14.52	14.83	16.03	9.82	10.14	10.75	11.06	12.26