

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: P909285

Luminaire Tested: DFN2DIP-SQ3F0-100D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909285
REPORT IS A COMBINATION OF REPORTS P901393 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D040US840-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

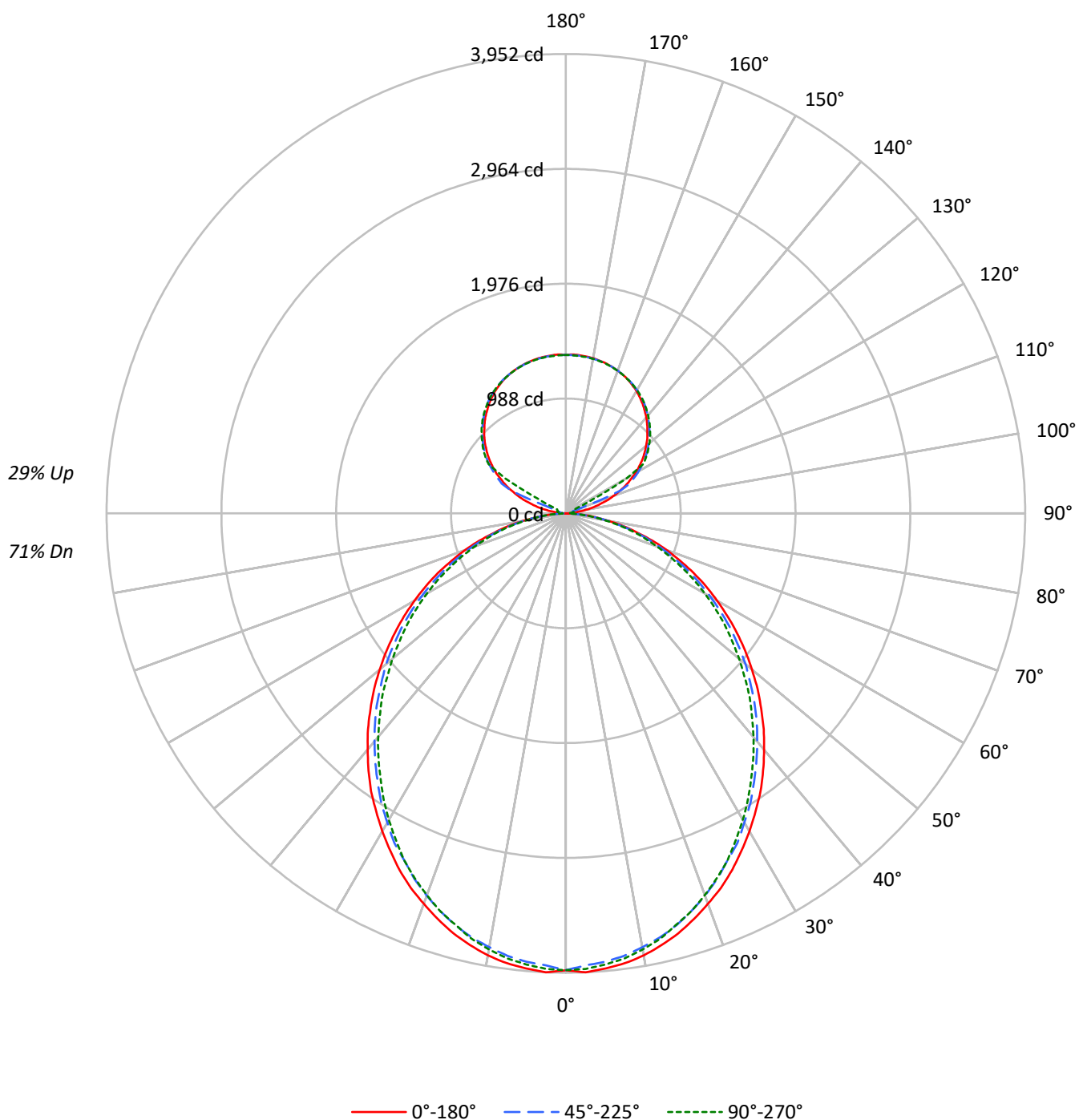
Lumens per Lamp: N/A
Luminaire Lumens: 13996.7 lumens
Efficiency: N/A
Efficacy: 108.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 128.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	90	97	93	90	86	84	81	78	75	73	71	67	66	64
2	93	86	79	74	88	81	76	71	73	69	65	66	62	59	59	56	54
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	50	58	52	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	44	52	45	40	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°	4502	4502	4502
5°	4507	4437	4468
10°	4467	4374	4406
15°	4399	4299	4310
20°	4307	4196	4212
25°	4216	4073	4099
30°	4102	3959	3955
35°	3994	3825	3803
40°	3862	3689	3658
45°	3730	3552	3510
50°	3585	3409	3339
55°	3433	3243	3181
60°	3262	3047	3000
65°	3074	2844	2786
70°	2835	2595	2556
75°	2504	2297	2341
80°	2105	1916	1935
85°	1481	1270	1267

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3730 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.6
10°-20°	1040.6	7.4
20°-30°	1529.3	10.9
30°-40°	1776.1	12.7
40°-50°	1773.9	12.7
50°-60°	1546.8	11.1
60°-70°	1143.4	8.2
70°-80°	646.9	4.6
80°-90°	173.2	1.2
90°-100°	44.9	0.3
100°-110°	167.6	1.2
110°-120°	444.4	3.2
120°-130°	737.1	5.3
130°-140°	783.0	5.6
140°-150°	727.7	5.2
150°-160°	585.1	4.2
160°-170°	377.0	2.7
170°-180°	129.8	0.9
0°-30°	2939.7	21.0
0°-40°	4715.8	33.7
0°-60°	8036.5	57.4
0°-90°	10000.1	71.4
90°-120°	656.9	4.7
90°-150°	2904.8	20.8
90°-180°	3997.0	28.6
0°-180°	13996.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	1	12	20	25	27	13
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1271	1276	1269	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.7	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.6	62.2	73.0	77.0
110°	437.1	457.7	172.7	74.0	77.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.9	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	662.0	520.8	262.4
120°	690.5	705.3	723.1	735.0	601.8
122.5°	745.7	761.5	781.3	787.2	788.2
125°	801.9	814.9	833.5	840.5	843.4
127.5°	853.2	867.1	881.9	891.8	892.7
130°	901.6	917.5	928.2	939.1	938.2
132.5°	950.9	963.8	974.6	983.5	982.6
135°	992.4	1008.2	1017.0	1026.9	1025.0
137.5°	1035.7	1047.5	1057.5	1067.3	1064.4
140°	1078.1	1086.1	1096.9	1105.8	1100.9
142.5°	1113.8	1120.6	1133.5	1141.2	1136.4
145°	1151.2	1150.2	1166.9	1173.9	1168.9
147.5°	1183.7	1180.7	1197.5	1202.4	1198.6
150°	1215.3	1208.4	1224.3	1230.1	1225.2
152.5°	1241.9	1234.1	1248.8	1254.8	1247.9
155°	1267.6	1258.8	1270.6	1276.5	1268.6
157.5°	1288.3	1280.4	1289.4	1296.3	1288.3
160°	1306.1	1300.1	1306.1	1311.9	1305.0
162.5°	1321.8	1316.0	1320.9	1327.8	1318.9
165°	1335.6	1329.8	1332.7	1339.6	1332.7
167.5°	1346.6	1340.5	1343.6	1350.5	1341.6
170°	1355.4	1349.5	1351.4	1358.4	1349.5
172.5°	1361.3	1355.4	1357.5	1364.3	1355.4
175°	1366.1	1359.3	1361.3	1368.2	1358.4
177.5°	1368.2	1361.3	1362.3	1369.3	1360.4
180°	1363.3	1363.3	1363.3	1363.3	1363.3

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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	14.24	15.34	14.99	16.11	17.04	13.80	14.89	14.55	15.66	16.59
	3H	15.92	16.90	16.68	17.68	18.64	15.43	16.41	16.19	17.19	18.15
	4H	16.51	17.44	17.29	18.23	19.20	16.02	16.95	16.80	17.74	18.71
	6H	16.92	17.78	17.71	18.57	19.56	16.42	17.28	17.21	18.07	19.06
	8H	17.03	17.85	17.83	18.66	19.65	16.53	17.35	17.33	18.16	19.15
	12H	17.08	17.86	17.89	18.67	19.69	16.58	17.35	17.38	18.16	19.18
4H	2H	14.73	15.66	15.51	16.45	17.42	14.37	15.30	15.16	16.09	17.06
	3H	16.61	17.39	17.41	18.21	19.20	16.20	16.98	17.00	17.80	18.79
	4H	17.33	18.04	18.14	18.86	19.87	16.91	17.61	17.72	18.43	19.45
	6H	17.85	18.47	18.68	19.31	20.33	17.42	18.03	18.25	18.88	19.90
	8H	18.01	18.58	18.84	19.42	20.45	17.57	18.14	18.40	18.98	20.02
	12H	18.09	18.60	18.94	19.47	20.51	17.64	18.15	18.49	19.02	20.06
8H	4H	17.54	18.11	18.37	18.95	19.99	17.16	17.74	18.00	18.58	19.61
	6H	18.18	18.65	19.04	19.53	20.57	17.79	18.27	18.65	19.15	20.18
	8H	18.40	18.82	19.27	19.70	20.75	18.00	18.42	18.87	19.30	20.35
	12H	18.54	18.91	19.41	19.78	20.88	18.12	18.49	19.00	19.37	20.47
12H	4H	17.54	18.05	18.39	18.91	19.95	17.17	17.68	18.02	18.55	19.59
	6H	18.21	18.63	19.08	19.51	20.56	17.83	18.25	18.70	19.13	20.19
	8H	18.46	18.83	19.33	19.70	20.80	18.07	18.45	18.95	19.32	20.42