

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: P909356

Luminaire Tested: DFN2DIP-SQ3F0-120D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909356
REPORT IS A COMBINATION OF REPORTS P899877 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D040US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

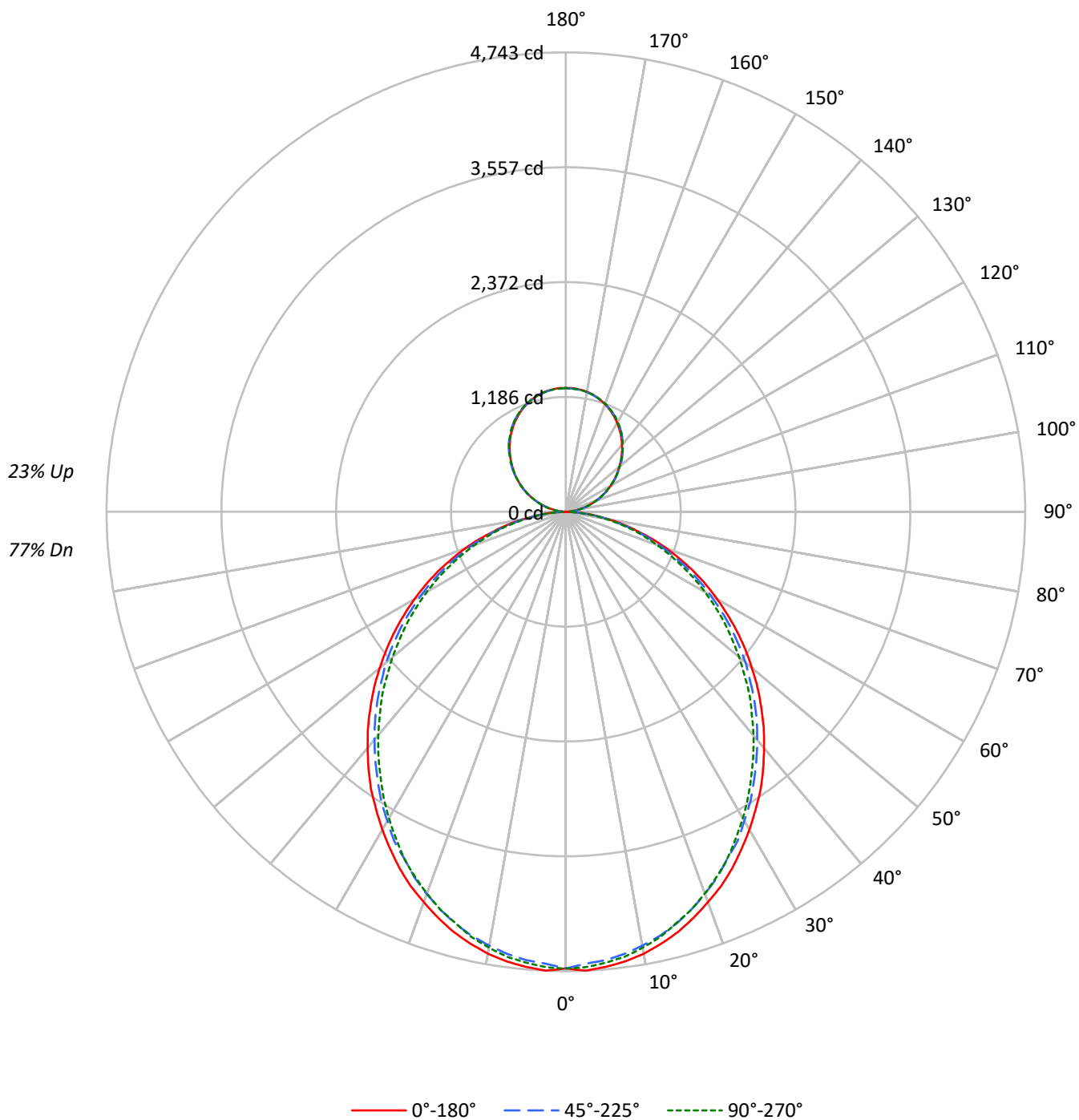
Lumens per Lamp: N/A
Luminaire Lumens: 15572.1 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 156.1
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5403	5403	5403
5°	5408	5324	5362
10°	5361	5249	5287
15°	5279	5159	5172
20°	5168	5035	5054
25°	5059	4888	4918
30°	4923	4751	4746
35°	4793	4589	4564
40°	4634	4426	4390
45°	4476	4263	4212
50°	4302	4091	4006
55°	4120	3892	3817
60°	3914	3656	3600
65°	3689	3412	3344
70°	3402	3114	3067
75°	3005	2756	2810
80°	2526	2300	2322
85°	1778	1523	1521

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4476 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.8	2.9
10°-20°	1248.7	8.0
20°-30°	1835.1	11.8
30°-40°	2131.4	13.7
40°-50°	2128.7	13.7
50°-60°	1856.2	11.9
60°-70°	1372.1	8.8
70°-80°	776.3	5.0
80°-90°	208.5	1.3
90°-100°	79.1	0.5
100°-110°	251.2	1.6
110°-120°	429.8	2.8
120°-130°	565.3	3.6
130°-140°	634.5	4.1
140°-150°	622.2	4.0
150°-160°	522.0	3.4
160°-170°	346.2	2.2
170°-180°	121.0	0.8
0°-30°	3527.6	22.7
0°-40°	5659.0	36.3
0°-60°	9643.8	61.9
0°-90°	12000.8	77.1
90°-120°	760.1	4.9
90°-150°	2582.2	16.6
90°-180°	3571.0	22.9
0°-180°	15572.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4715	4715	4715	4715	4715	
5°	4715	4698	4648	4684	4675	448
15°	4489	4462	4403	4421	4398	1264
25°	4062	4026	3950	3958	3950	1869
35°	3505	3460	3387	3360	3337	2189
45°	2852	2820	2752	2703	2684	2201
55°	2158	2131	2077	2022	2000	1930
65°	1456	1428	1383	1342	1320	1439
75°	762	753	730	703	712	813
85°	186	181	177	163	159	207
90°	1	14	38	35	37	15
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4715.4	4715.4	4715.4	4715.4	4715.4
2.5°	4742.7	4720.1	4670.1	4715.4	4706.7
5°	4715.4	4697.5	4647.5	4683.6	4674.9
7.5°	4683.6	4656.6	4606.6	4643.2	4634.1
10°	4634.1	4602.3	4547.9	4584.0	4570.6
12.5°	4565.7	4538.7	4484.4	4507.0	4497.8
15°	4488.8	4461.8	4402.6	4420.9	4398.3
17.5°	4393.5	4366.6	4307.4	4330.0	4307.4
20°	4289.1	4262.1	4198.7	4212.1	4194.4
22.5°	4185.2	4144.3	4085.1	4085.1	4076.0
25°	4062.5	4026.4	3949.5	3958.2	3949.5
27.5°	3926.4	3894.6	3836.0	3822.4	3799.9
30°	3790.7	3754.2	3686.3	3672.9	3654.6
32.5°	3645.4	3618.6	3545.8	3518.5	3500.2
35°	3504.9	3459.8	3387.1	3359.7	3337.1
37.5°	3346.2	3305.4	3232.7	3201.0	3178.3
40°	3183.2	3146.6	3073.9	3033.5	3015.3
42.5°	3024.4	2987.9	2915.7	2870.0	2843.1
45°	2852.2	2820.5	2752.1	2702.6	2684.3
47.5°	2684.3	2652.5	2579.9	2529.9	2503.0
50°	2507.3	2484.7	2421.2	2357.6	2335.0
52.5°	2335.0	2303.3	2244.6	2194.5	2162.8
55°	2158.5	2131.1	2076.7	2022.4	1999.7
57.5°	1981.5	1958.8	1899.7	1845.3	1827.0
60°	1804.4	1786.7	1723.1	1673.1	1659.6
62.5°	1632.2	1600.4	1555.3	1510.1	1491.8
65°	1455.7	1428.3	1383.0	1342.1	1319.6
67.5°	1274.3	1251.2	1210.8	1179.1	1160.8
70°	1106.4	1088.1	1047.2	1015.5	997.7
72.5°	934.2	915.9	893.3	861.6	848.1
75°	761.5	752.9	729.7	702.9	712.0
77.5°	607.5	589.3	580.2	566.6	553.2
80°	453.6	448.8	439.7	426.3	417.1
82.5°	308.3	308.3	304.1	285.8	285.8
85°	185.7	181.4	177.0	163.1	158.8
87.5°	81.8	72.6	63.5	50.0	45.2
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

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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	15.30	16.47	15.98	17.17	17.99	14.85	16.02	15.54	16.73	17.55
	3H	16.98	18.03	17.67	18.74	19.60	16.48	17.54	17.18	18.25	19.11
	4H	17.57	18.57	18.29	19.29	20.16	17.08	18.07	17.80	18.80	19.67
	6H	17.99	18.90	18.72	19.64	20.52	17.49	18.40	18.22	19.14	20.02
	8H	18.10	18.97	18.84	19.72	20.61	17.60	18.47	18.34	19.22	20.11
	12H	18.15	18.99	18.90	19.74	20.65	17.65	18.48	18.39	19.23	20.14
4H	2H	15.79	16.78	16.51	17.51	18.38	15.44	16.43	16.16	17.15	18.02
	3H	17.68	18.51	18.41	19.27	20.16	17.27	18.10	18.00	18.86	19.75
	4H	18.40	19.16	19.15	19.92	20.83	17.98	18.73	18.73	19.49	20.41
	6H	18.93	19.58	19.70	20.37	21.29	18.50	19.15	19.26	19.94	20.86
	8H	19.08	19.70	19.85	20.48	21.41	18.65	19.26	19.42	20.04	20.98
	12H	19.17	19.72	19.96	20.53	21.47	18.72	19.27	19.51	20.08	21.02
8H	4H	18.62	19.23	19.39	20.01	20.95	18.24	18.85	19.01	19.64	20.57
	6H	19.26	19.76	20.06	20.59	21.53	18.87	19.38	19.67	20.20	21.14
	8H	19.48	19.93	20.29	20.75	21.71	19.08	19.54	19.90	20.36	21.31
	12H	19.62	20.02	20.43	20.83	21.84	19.21	19.61	20.02	20.42	21.43
12H	4H	18.62	19.17	19.41	19.97	20.92	18.25	18.80	19.04	19.60	20.55
	6H	19.29	19.74	20.10	20.56	21.52	18.91	19.37	19.73	20.19	21.14
	8H	19.54	19.94	20.35	20.75	21.76	19.16	19.56	19.97	20.37	21.38